SERVICE MANUAL

M670SU / M675SU

notebook

Notebook Computer

M670SU/M675SU

Service Manual

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the ***M670SU/ M675SU*** series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists
Appendix B, Schematic Diagrams

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (DC Output 19V, 4.74A AC/DC Adapter).

CAUTION

Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

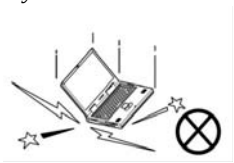
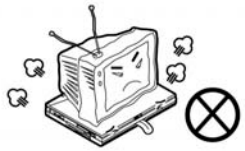
TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER, TELECOMMUNICATION LINE CORD

This Computer's Optical Device is a Laser Class 1 Product

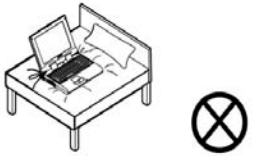
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*
		

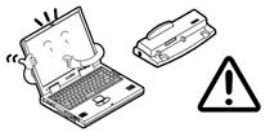
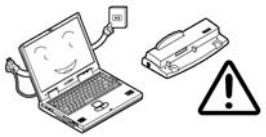
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface which will block the vents.*
			

3. **Follow the proper working procedures for the computer**. Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*

4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*
	

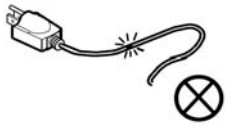
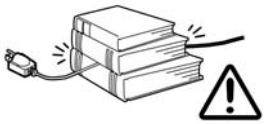
Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on CD
This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***M670SU/M675SU*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP, Windows Vista*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The ***M670SU/M675SU*** series notebook is designed to be upgradeable. See ***"Disassembly" on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the " " symbol.

The balance of this chapter reviews the computer's technical specifications and features.

System Specifications

Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/speeds and CD/DVD device types) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for details.

Feature	Specification	
Processor	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package **T7200/ T7400/ T7600**	65nm (65 Nanometer) Process Technology 4MB On-die L2 Cache & 667MHz FSB 2.0/ 2.16/ 2.33 GHz
	Intel® Core™2 Duo Processor (478-pin) Micro-FC-PGA Package **T5500/ T5600**	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 667MHz FSB 1.66/ 1.83 GHz
	Intel® Core™ Duo Processor (478-pin) Micro-FC-PGA Package **T2300/ T2400/ T2500/ T2600/ T2700**	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 667MHz FSB 1.66/ 1.83/ 2.0/ 2.16/ 2.33 GHz
	Intel® Core™ Solo Processor (478-pin) Micro-FC-PGA Package **T1300/ T1400**	65nm (65 Nanometer) Process Technology 2MB On-die L2 Cache & 667MHz FSB 1.66/ 1.83 GHz
	Intel® Celeron® M Processor (478-pin) Micro-FCPGA Package **410/ 420/ 430/ 440/ 450**	65nm (65 Nanometer) Process Technology 1MB On-die L2 Cache & 533MHz FSB 1.46/ 1.60/ 1.73/ 1.86/ 2.0 GHz
Core Logic	VIA VN896 + VT8237A Chipset	
Memory	Two 200 Pin SO-DIMM Sockets Supporting **DDRII (DDR2**) 533/667 MHz 64-bit Wide DDRII (DDR2) Data Per Channel Memory Expandable up to 2GB (256/ 512/ 1024 MB **DDRII** Modules)	

Feature	Specification	
Security	Security (Kensington® Type) Lock Slot	BIOS Password
BIOS	One 4Mb Flash ROM	Phoenix™ BIOS
LCD	17.0" WXGA (1440 * 900) TFT LCD OR 17.1" WSXGA+ (1680 * 1050) TFT LCD OR 17.1" WUXGA (1920 * 1200) TFT LCD	
Video Adapter	**NVIDIA GeForce Go 7300 (G72M-V) Discrete Video System (External On Board)** TurboCache™ Total Graphics Memory up to **512MB** (with System Memory) Supports Dual Display and Ergonomic Refresh Rates up to 2045 * 1536 at 85Hz Supports Microsoft DirectX 9.0 128MB using On Board DDRII Memory	
Storage	One Changeable 12.7mm(h) Optical Device (CD/DVD) Type Drive One Easy Changeable 2.5" 9.5 mm (h) **SATA** (Serial) HDD	
Audio	Integrated AZALIA Compliant Interface (HDA) 3D Stereo Enhanced Sound System Sound-Blaster PRO™ Compatible	2 * Built-In Speakers Built-In Microphone
Keyboard & Pointing Device	Winkey Keyboard	Built-In TouchPad with Scrolling Function
Interface	Three USB 2.0 Ports One External Monitor Port One Headphone-Out Jack One Microphone-In Jack One Line-In Jack	One S/PDIF Out Jack One RJ-11 Modem Jack One RJ-45 LAN Jack One DC-in Jack
Card Reader	Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) **Note:** MS Duo/ Mini SD/ RS MMC Cards require a PC adapter	
ExpressCard Slot	One ExpressCard/34(54) Slot	

Feature	Specification
Communication	AZALIA 56K Plug & Play Fax/Modem V.90/92 Compliant 10M/100Mb Base-T Ethernet LAN 802.11 b/g USB Wireless LAN Module (**Option**) Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (**Factory Option**) 300K or 1.3M Pixel USB PC Camera Module (**Factory Option**)
Power Management	Supports ACPI 2.0 and PCI Bus Power Management 1.1 Compliant Battery Low Suspend Supports Wake on LAN
Power	Full Range AC/DC Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 4.74A (**90** Watts)
Battery	6 Cell Smart Lithium-Ion Battery Pack, 4000mAH / 4400mAH
Environmental Spec	Temperature Operating: 5°C ~ 35°C Non-Operating: -20°C ~ 60°C Relative Humidity Operating: 20% ~ 80% Non-Operating: 10% ~ 90%
Dimensions & Weight	397mm (w) * 280.5mm (d) * 39mm (h) 2.98 kg +/- 3% With 6 Cell Battery and Without Optional Modules
Optional	**Optical Drive Module Options:** DVD/CD-RW Combo Drive Module DVD-Dual Drive Module Fingerprint Reader Module (**Factory Option**) 802.11 b/g USB Wireless LAN Module 300K or 1.3M Pixel USB PC Camera Module (**Factory Option**) Bluetooth 2.0 + EDR (Enhanced Data Rate) Module (**Factory Option**)

External Locator - Top View with LCD Panel Open

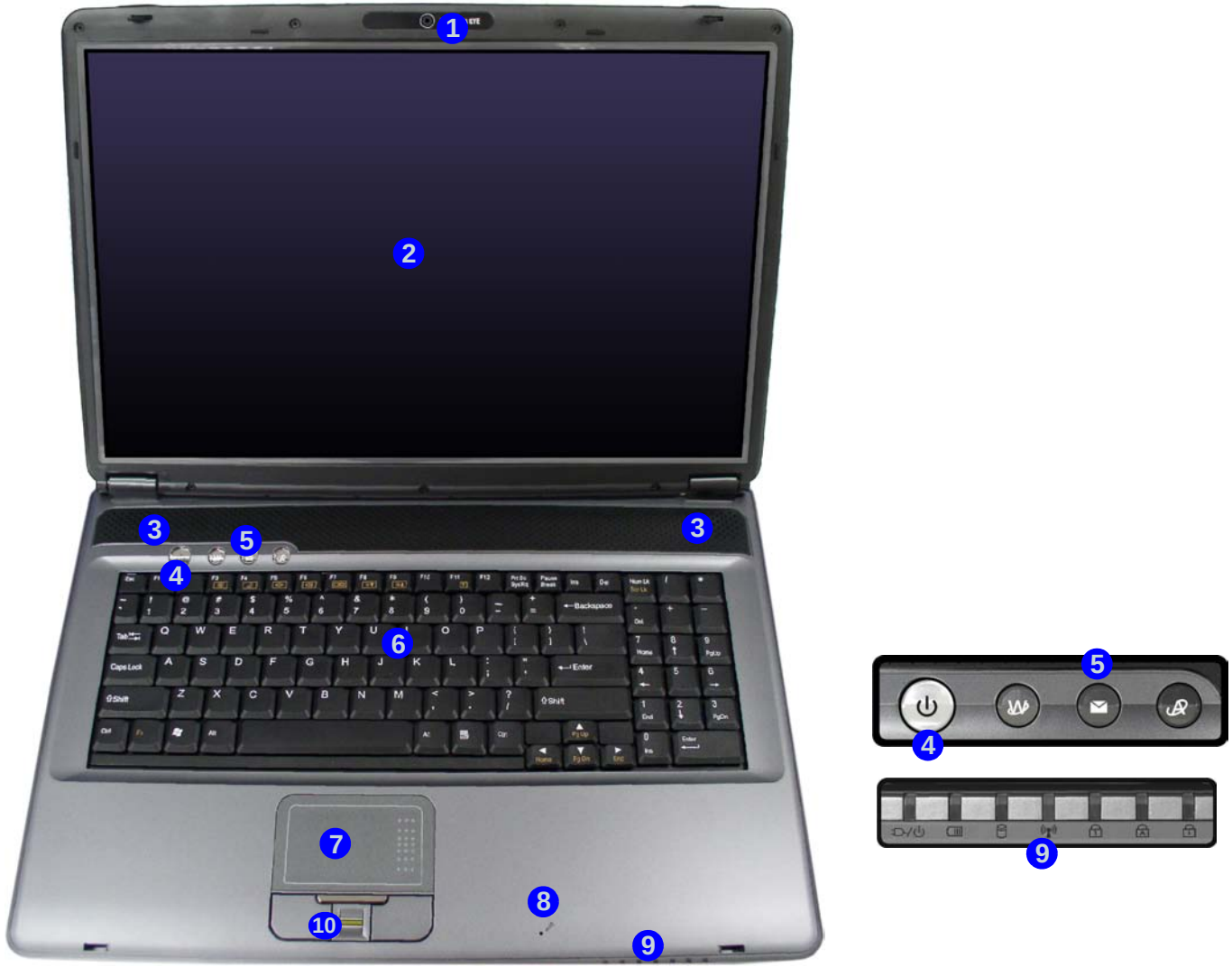


Figure 1
Top View

1. Optional Built-In PC Camera
2. LCD
3. Speakers
4. Power Button
5. Hot Key Buttons
6. Keyboard
7. TouchPad and Buttons
8. Built-In Microphone
9. LED Indicators
10. Fingerprint Reader (**Optional**)

External Locator - Front & Rear Views

Figure 2
Front Views

1. LED Indicators

Figure 3
Rear Views

1. 1 * USB Port
2. DC-In Jack
3. Battery

External Locator - Left & Right Side Views

Figure 4
Left Side View

1. Security Lock Slot
2. Optical Device Drive Bay
3. RJ-11 Modem Jack
4. S/PDIF-Out Jack
5. Microphone-In Jack
6. Headphone-Out Jack
7. Line-In Jack

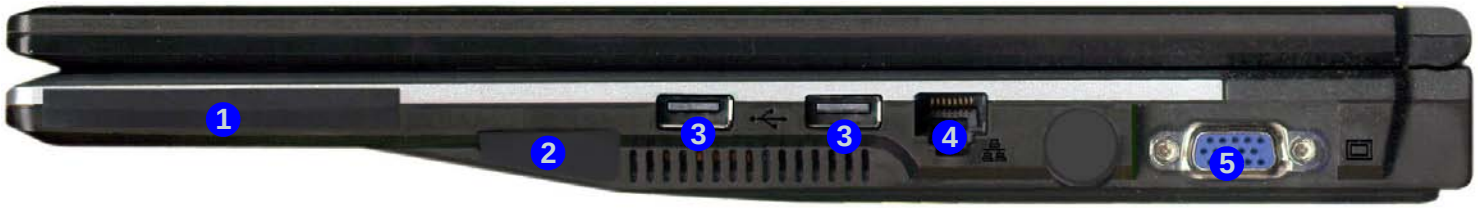


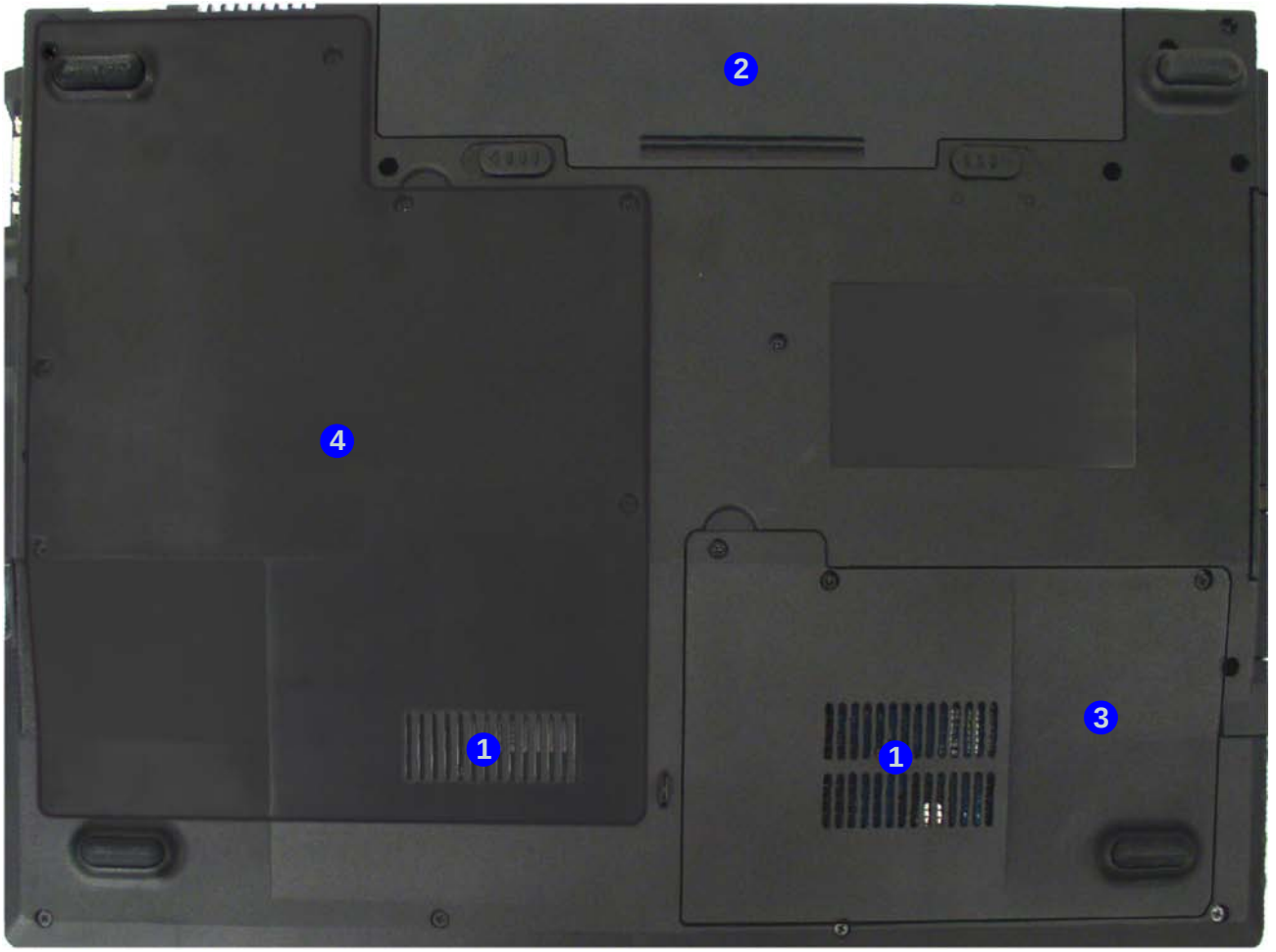
Figure 5
Right Side View

1. ExpressCard Slot
2. 7-in-1 Card Reader
3. 2 * USB 2.0 Ports
4. RJ-45 LAN Jack
5. External Monitor Port

External Locator - Bottom View

Figure 6
Bottom View

1. Vent/Fan Intake
2. Battery
3. Hard Disk Bay Cover
4. CPU/RAM Bay Cover



Overheating

To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Mainboard Overview - Top (Key Parts)

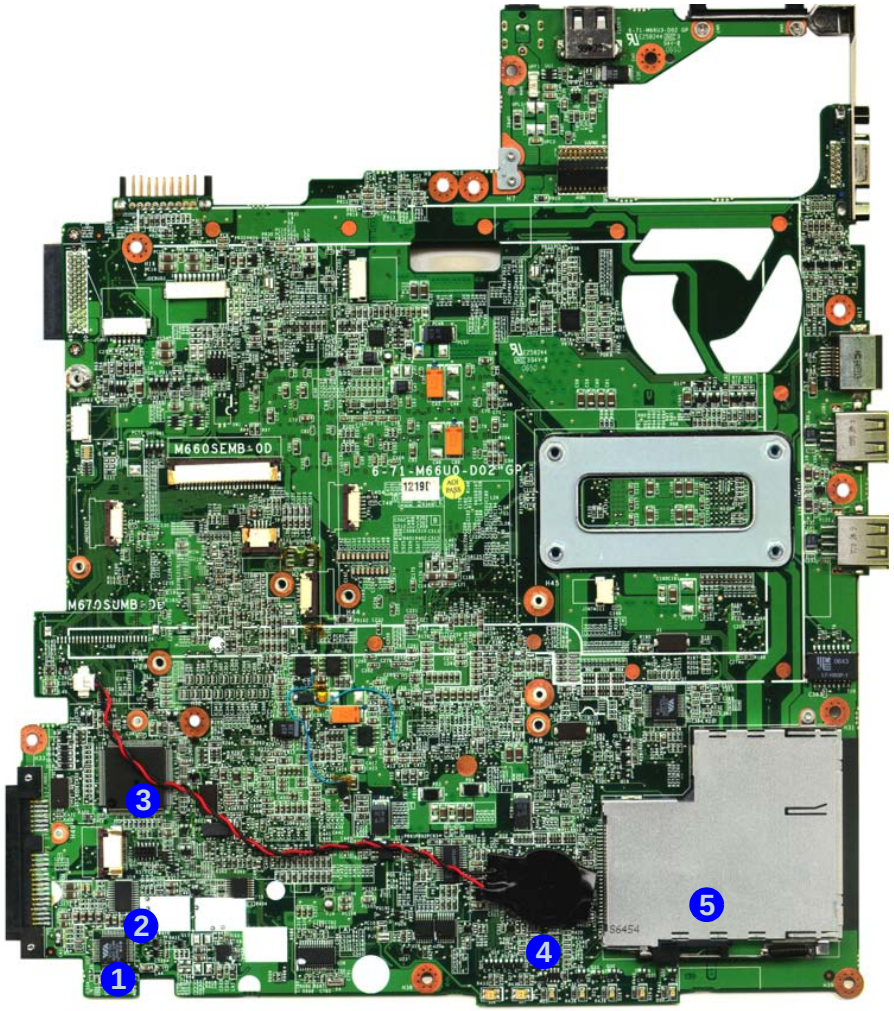


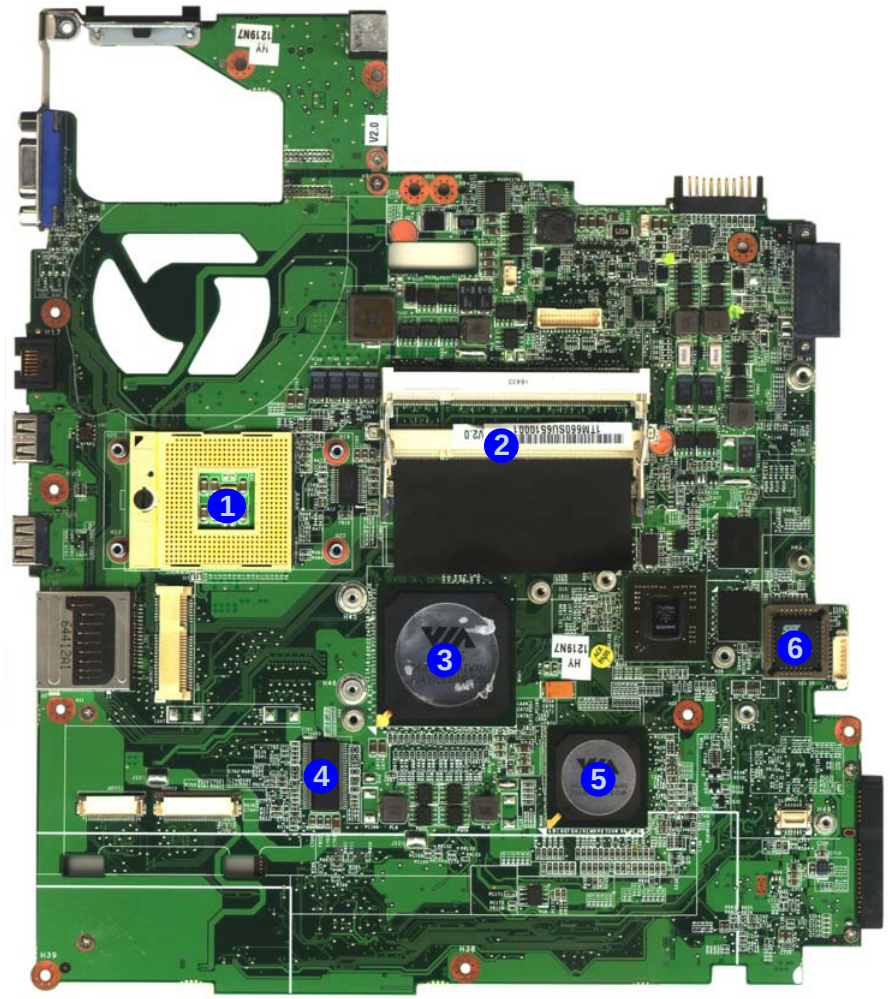
Figure 7
Mainboard Top Key Parts

1. Audio Codec VT1613
2. Audio Amp
3. Hitachi H8
4. Card Reader Control
5. ExpressCard Assembly

Mainboard Overview - Bottom (Key Parts)

Figure 8
Mainboard Bottom Key Parts

1. CPU Socket (no CPU installed)
2. Memory Slots DDRII So-DIMM
3. Northbridge-VN896
4. ICS Clock Generator
5. Southbridge-VT8237A
6. Flash BIOS ROM



Mainboard Overview - Top (Connectors)

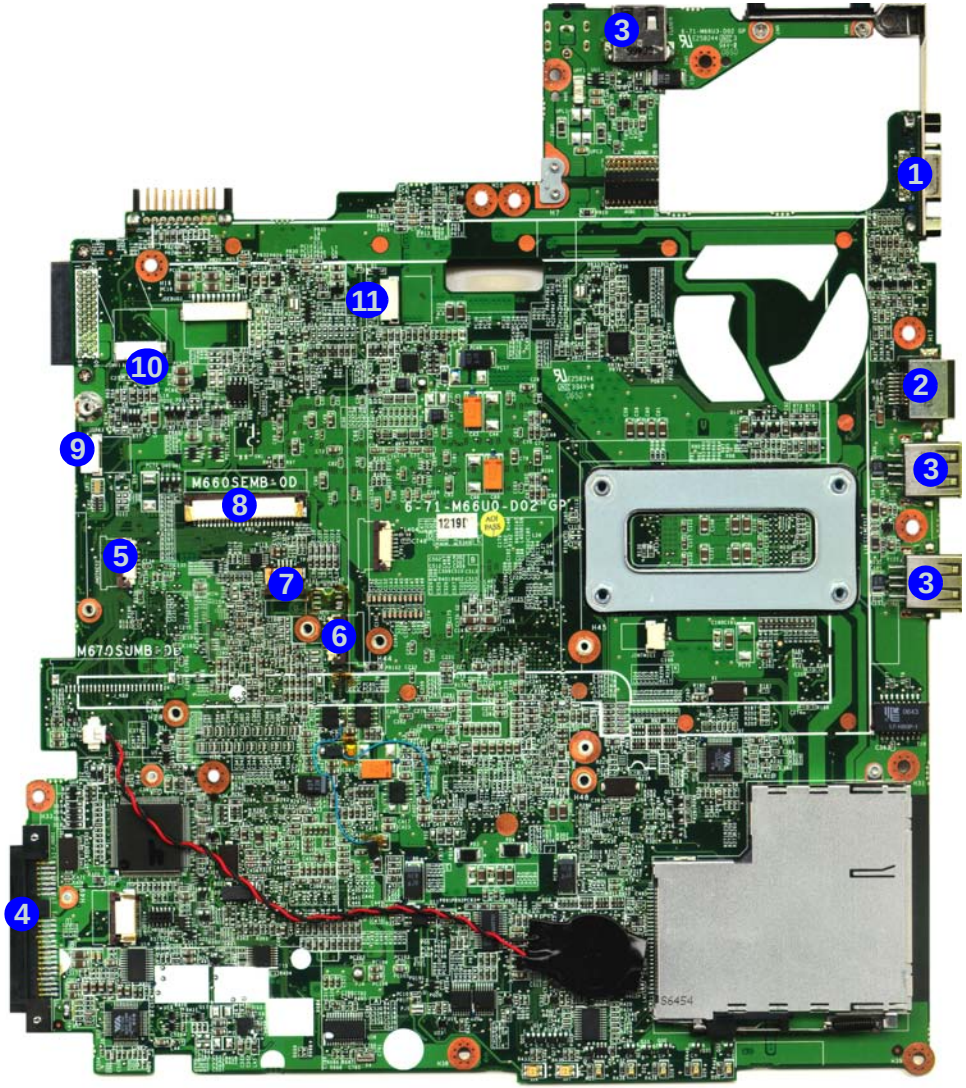


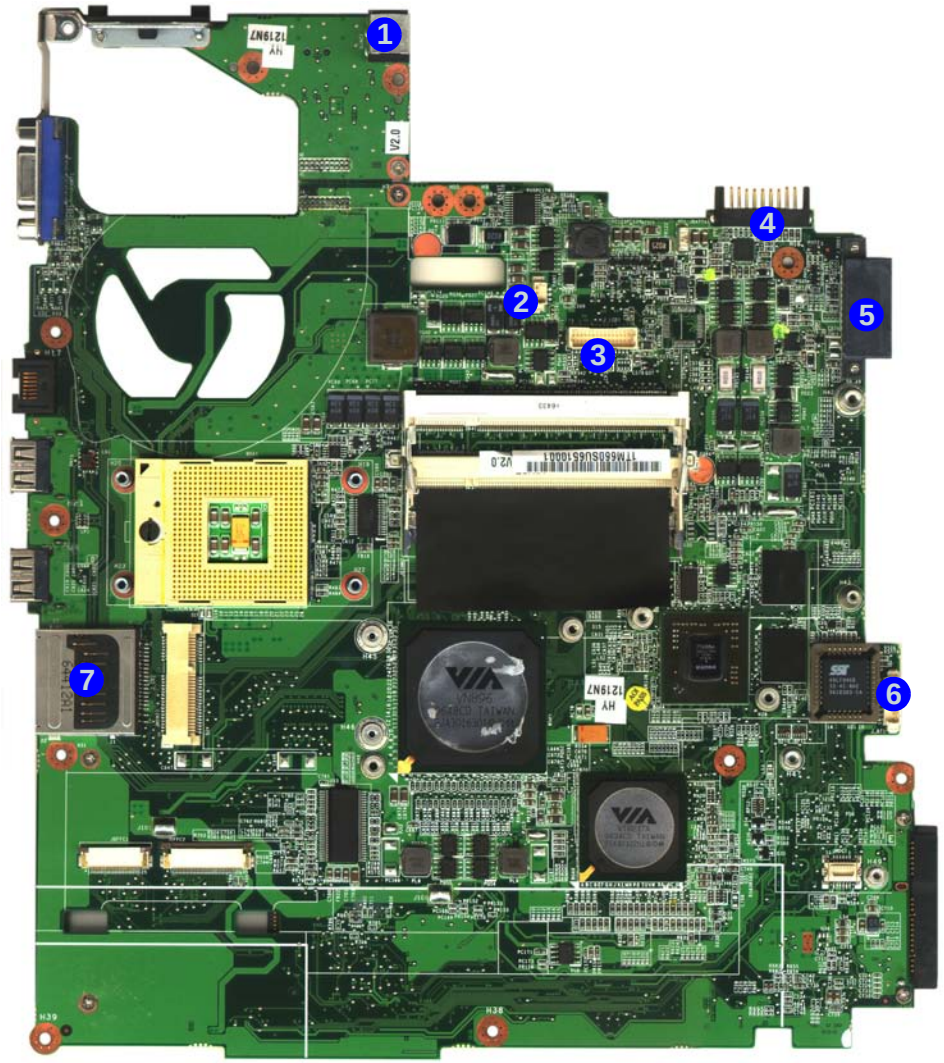
Figure 9
Mainboard Top Connectors

1. External Monitor Port
2. RJ-45 LAN Jack
3. USB Port
4. HDD Connector
5. Hotkey Cable Connector
6. Power Hotkey Cable Connector
7. Touch Pad Cable Connector
8. Keyboard Cable Connector
9. Speaker Cable Connector
10. Inverter Cable Connector
11. CCD Cable Connector

Mainboard Overview - Bottom (Connectors)

Figure 10
Mainboard Bottom Connectors

1. DC-In Jack
2. Fan Cable Connector
3. LCD Cable Connector
4. Batterry Connector
5. Optical Device Drive Connector
6. Bluetooth Cable Connector
7. Card Reader



Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***M670SU/M675SU*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

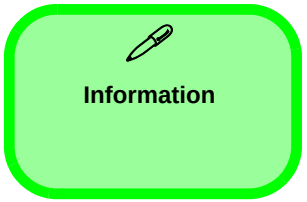
We suggest you completely review any procedure before you take the computer apart.

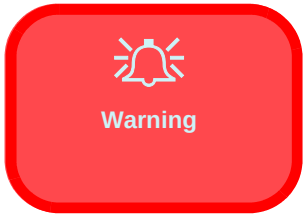
Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a will also provide any possible helpful information. A box with a contains warnings.

An example of these types of boxes are shown in the sidebar.





NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery *page 2 - 5*

To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 8*

To remove the Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 10*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the wireless LAN *page 2 - 12*

To remove the Modem :

1. Remove the battery *page 2 - 5*
2. Remove the modem *page 2 - 13*

To remove the Bluetooth:

1. Remove the battery *page 2 - 5*
2. Remove the bluetooth *page 2 - 14*

To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 15*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 16*

Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latches (1 & 2) the direction of the arrow, and hold latch 2 in place.
3. Slide the battery in the direction of the arrow 3.
4. Lift the battery 4 out.

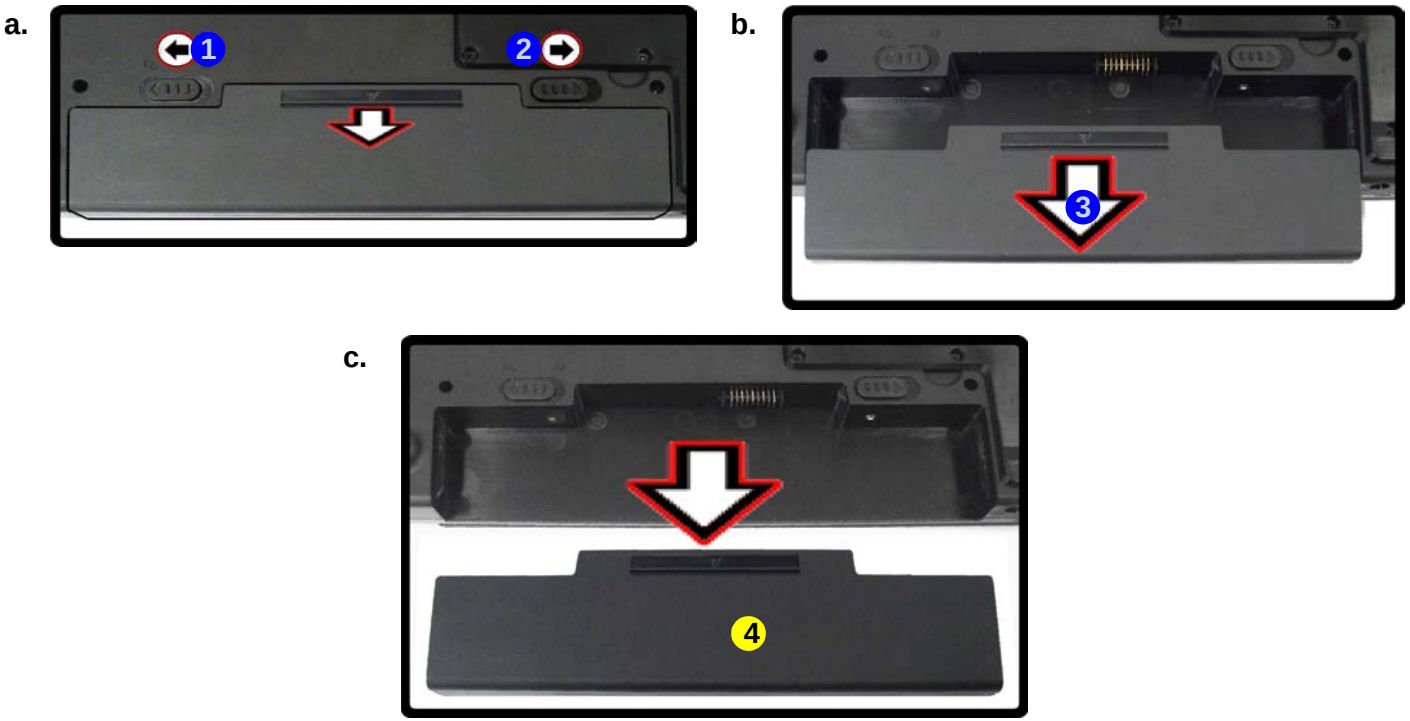


Figure 1
Battery Removal

a. Slide the 2 latches and hold latch 2 in place.
b. Slide the battery in the direction of the arrow.
c. Lift the battery out.

4. Battery

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (**SATA**) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

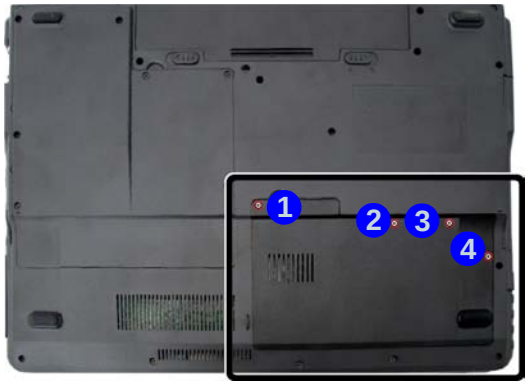
Figure 2
HDD Assembly Removal

a. Locate the HDD bay cover and remove the screws.
b. Remove the bay cover.

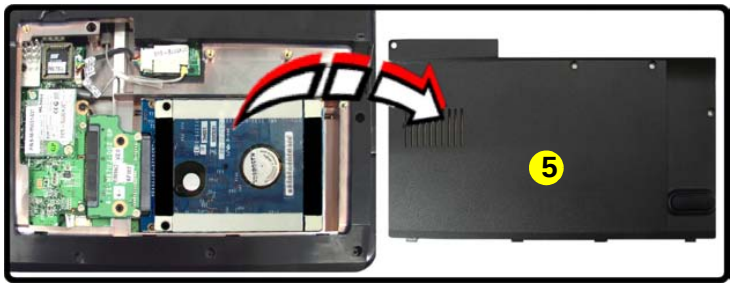
Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Locate the hard disk bay cover and remove the screws (1 - 4).
3. Remove the bay cover 5.

a.



b.



5. HDD Bay Cover

- 4 Screws

HDD System Warning

New HDD's are blank. Before you begin make sure:

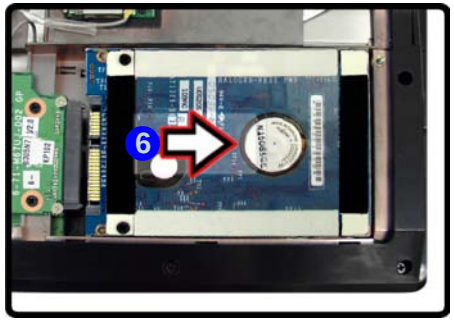
You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

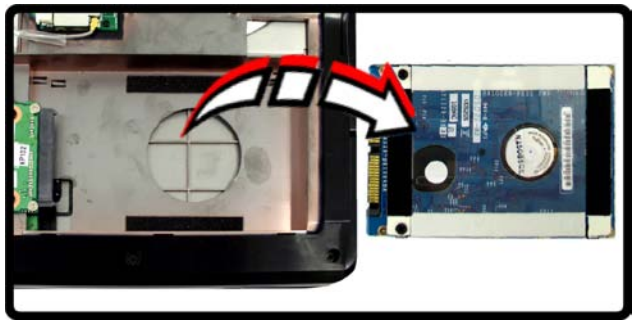
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

4. Carefully grip the mylar tab 6 and slide the hard disk in the direction of arrow.
5. Lift the hard disk up (***Figure d***) in the direction of arrow.
6. Remove the screws 7 - 8 and separate the mylar cover 9 from the hard disk 10 .
7. Reverse the process to install any new hard disk.

c.



d.



e.

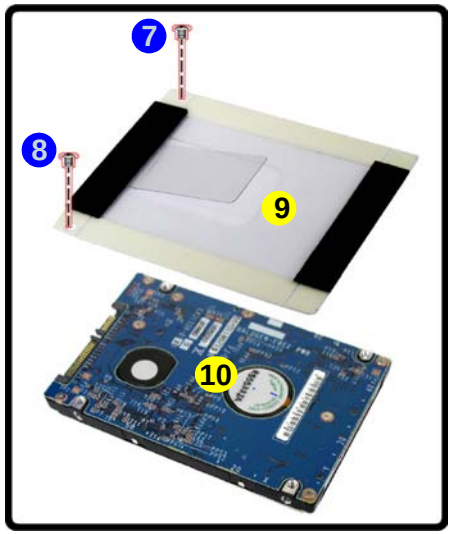


Figure 3
HDD Assembly Removal Sequence

c. Slide the HDD in the direction of the arrow.
d. Lift the HDD out of the bay.
e. Remove the screws and separate the mylar cover from the HDD.

9. Mylar Cover
10. HDD

Removing the System Memory (RAM)

Figure 4
RAM Module Removal

a. Remove the screws.
b. Remove the cover.

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting **DDRII** 533/667MHz. The main memory can be expanded up to 2GB. The SO-DIMM modules supported are 256MB, 512MB and 1024MB **DDRII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

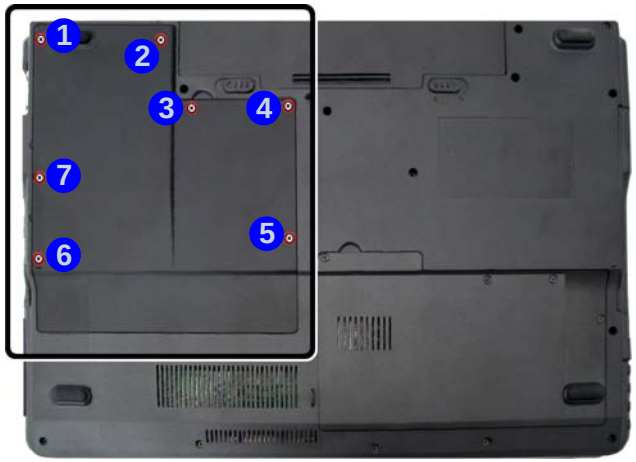
Memory Upgrade Process

1. Turn **off** the computer, remove the battery (*page 2 - 5*).
2. Locate the CPU/RAM bay cover, and remove screws 1 - 7.
3. Remove the bay cover 8.
4. The RAM will be visible at point 9 on the mainboard.

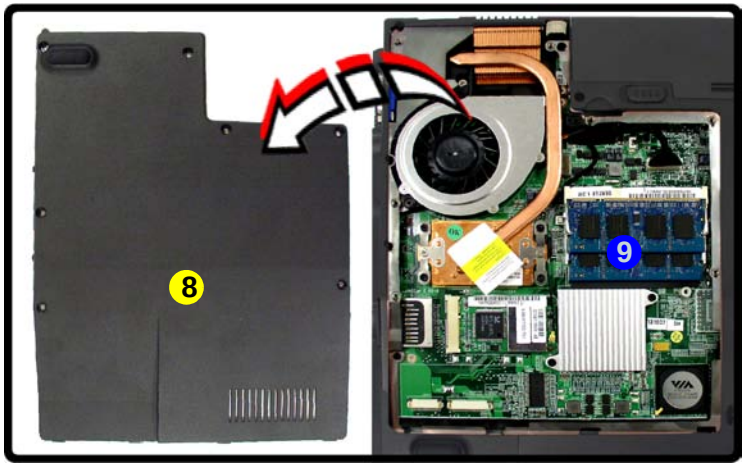
Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

a.



b.



8. CPU/RAM Bay Cover

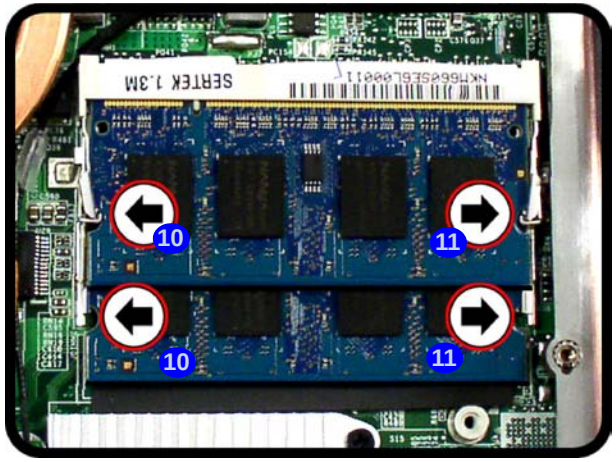
- 7 Screws

5. Gently push the two release latches (10 & 11) on the sides of the memory socket in the direction indicated by the arrows (***Figure c***).
6. The RAM module(s) 12 will pop-up (***Figure d***), and you can then remove it.

Figure 5
Memory Removal Sequence

c. Push the release latch(es).
d. Remove the module(s).

c.



d.

7. Push the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
10. Press the module down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the bay cover and the screws (see ***page 2 - 8***).
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

12 RAM Module(s)

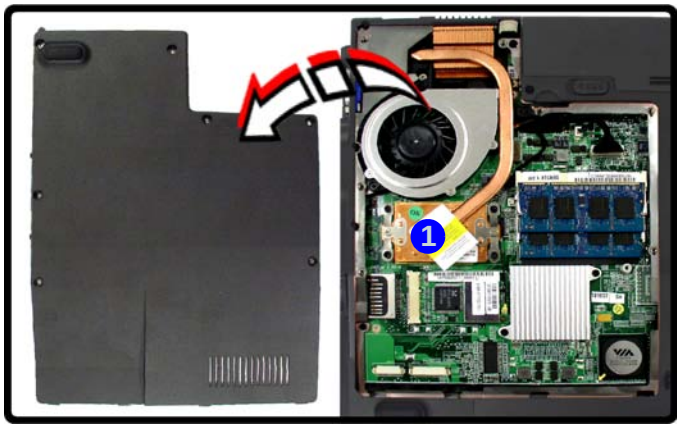
Removing the Processor

1. Turn **off** the computer, and remove the battery (***page 2 - 5***) and the CPU/RAM bay cover (***page 2 - 8***).
2. The CPU heat sink will be visible at point 1 on the mainboard.
3. Remove screws 2 - 5 from the heat sink in the order indicated.
4. Carefully lift up the heat sink 6 (***Figure c***) off the computer.

Figure 6
Processor Removal

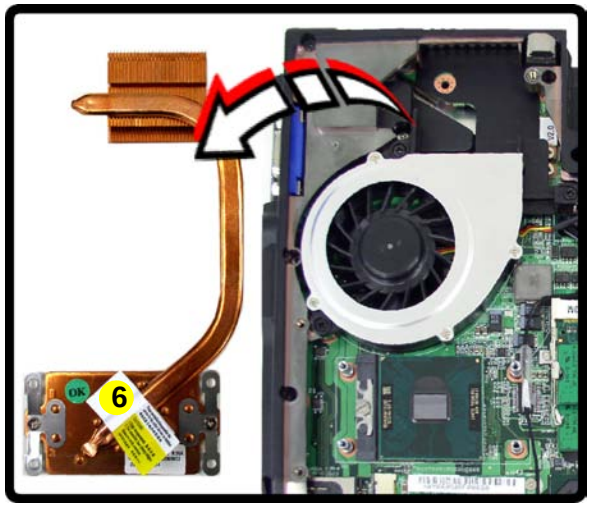
a. Remove the cover and locate the heat sink.
b. Remove the 4 screws in the order indicated.
c. Remove the heat sink.

a.



b.

c.



6. Heat Sink

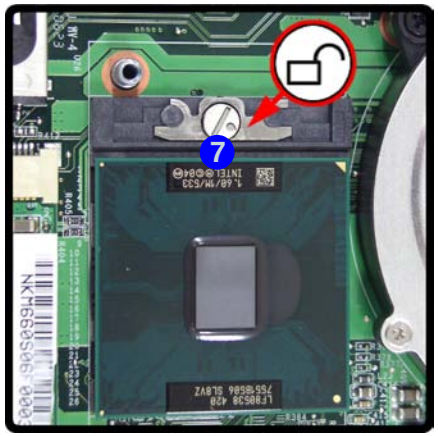
- 4 Screws

5. Turn the release latch 7 towards the unlock symbol, to release the CPU (*Figure d*).
6. Carefully (it may be hot) lift the CPU 8 up out of the socket (*Figure e*).
7. Reverse the process to install a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

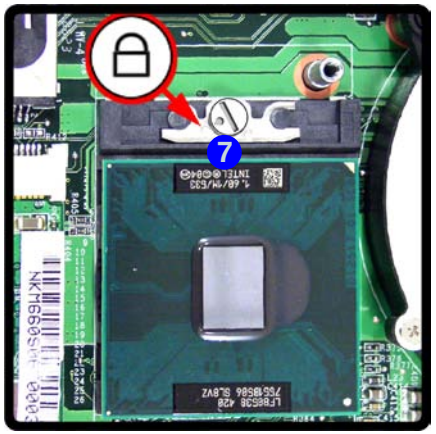
Figure 7
Processor Removal (cont'd)

d. Turn the release latch to unlock the CPU.
e. Lift the CPU out of the socket.

d.

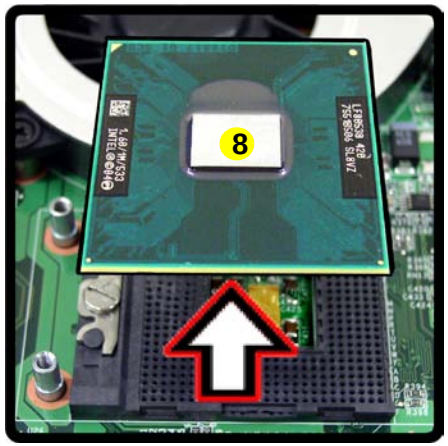


Unlock



Lock

e.



Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

8. CPU

Figure 8
Wireless LAN Module Removal

a. Remove the cover and locate the heat sink.
b. Disconnect the cable and remove the 2 screws.
c. The WLAN module will pop up.
d. Remove the WLAN module.

Note: Make sure you reconnect the antenna cable to the "Main" socket (***Figure b***).

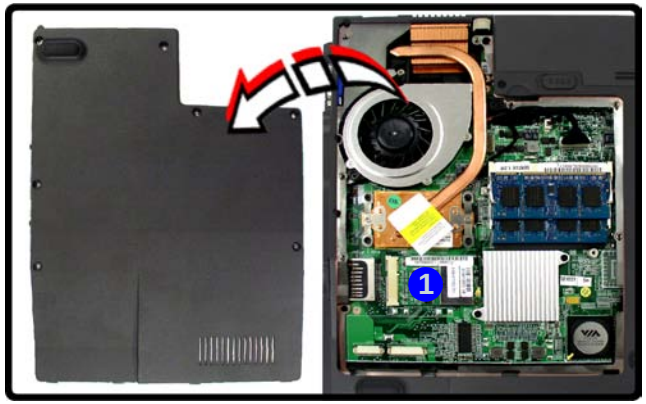
5. WLAN Module

- 2 Screws

Removing the Wireless LAN Module

1. Turn **off** the computer, remove the battery (***page 2 - 5***) and the module bay cover (***page 2 - 8***).
1. The Wireless LAN module will be visible at point 1 on the mainboard.
2. Carefully disconnect cable 2, then remove the screws 3 - 4 from the module socket.
3. The wireless LAN module 5 will pop-up.
4. Lift the wireless LAN module (***Figure d***) up and off the computer.

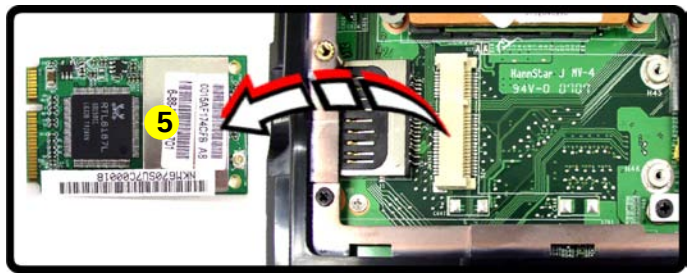
a.



b.

c.

d.



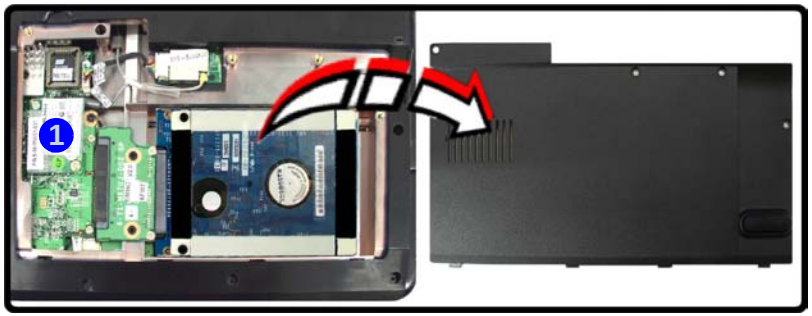
Removing the Modem

1. Turn **off** the computer, remove the battery (*page 2 - 5*), and remove the hard disk bay cover (*page 2 - 6*).
2. The modem will be visible at point 1 on the mainboard.
3. Remove screws 2 - 3 from the modem module.
4. Lift the modem up off the socket 4 and separate the modem from the connector 5.
5. Lift the modem 6 up and off the computer.

Figure 9
Modem Removal

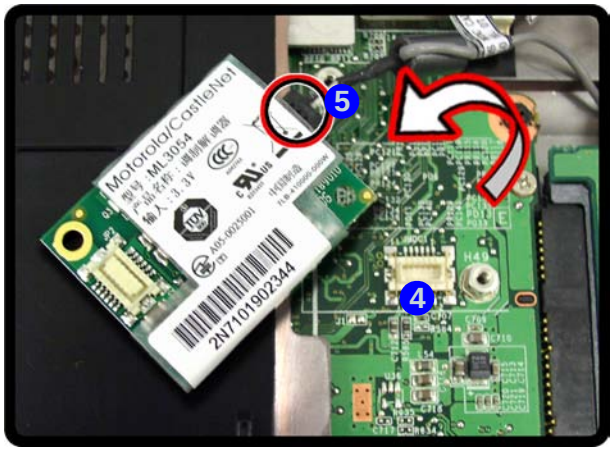
a. Remove the cover and locate the modem.
b. Remove the screws.
c. Lift the modem up off the socket and disconnect the connector.
d. Lift the modem out.

a.

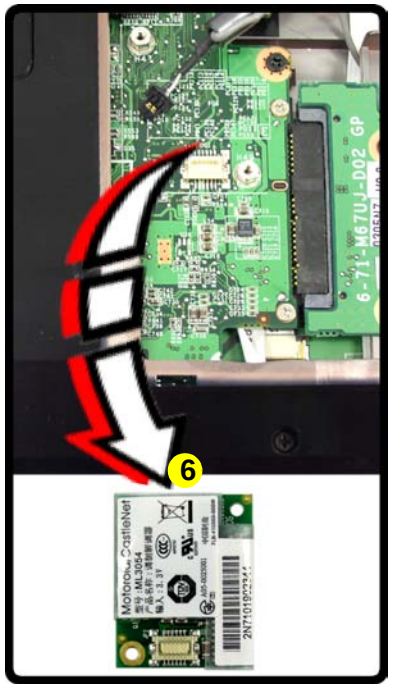


b.

c.



d.



6. Modem

- 2 Screws

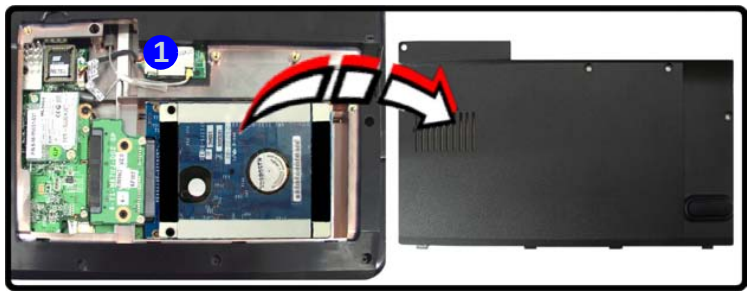
Figure 10
Bluetooth Removal

a. Remove the cover and locate the Bluetooth module.
b. Separate the the module from connector and disconnect the cable.
c. Remove Bluetooth module.

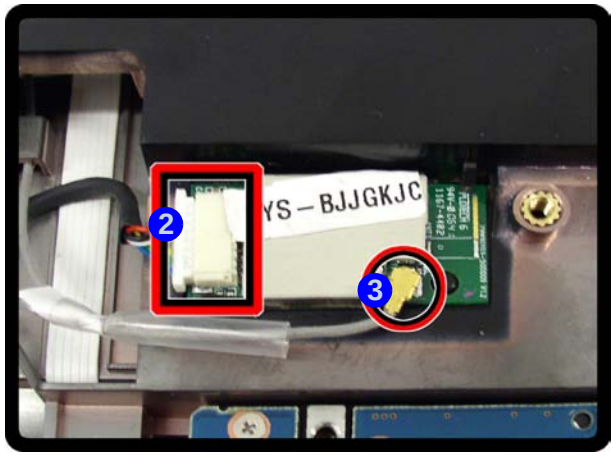
Removing the Bluetooth Module

1. Turn off the computer, remove the battery (***page 2 - 5***) and remove the hard disk bay cover (***page 2 - 6***).
2. The Bluetooth module will be visible at point 1 on the mainboard.
3. Carefully separate the module from the connector 2 and disconnect the cable 3.
4. Lift the Bluetooth module 4 (***Figure c***) up and off the computer.

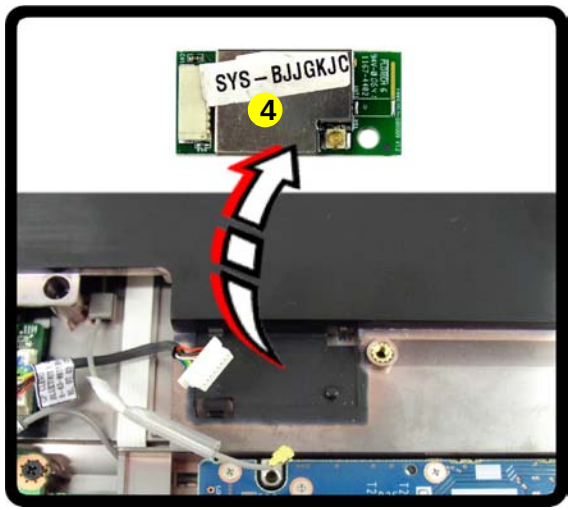
a.



b.



c.



4. Bluetooth Module

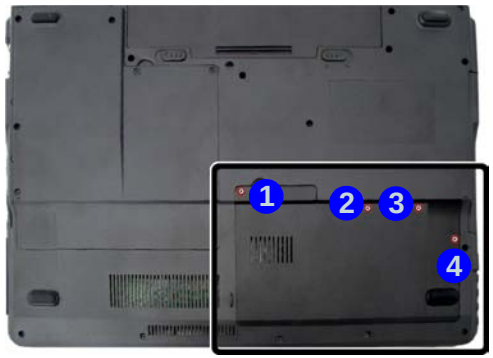
Removing the Optical (CD/DVD) Device

1. Turn off the computer, remove the battery (*page 2 - 5*).
2. Locate the hard disk bay cover and remove screws (1 - 4).
3. Remove the bay cover 5.
4. Remove the screw at point 6, and use a screwdriver to carefully push out the optical device 8 at point 7.
5. Insert the new device and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up.
6. Restart the computer to allow it to automatically detect the new device.

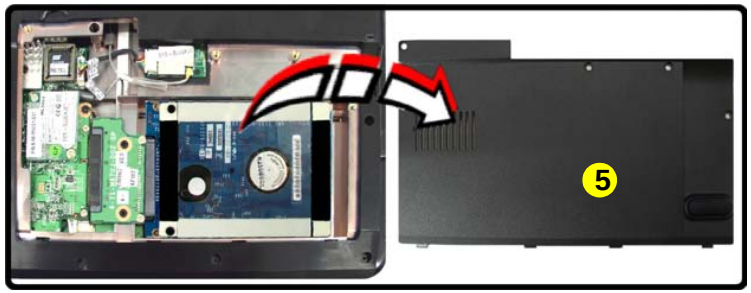
Figure 11
Optical Device Removal

a. Remove the screws.
b. Remove the cover.
c. Remove the screw and push the optical device out off the computer at point 7.
d. Remove the optical device.

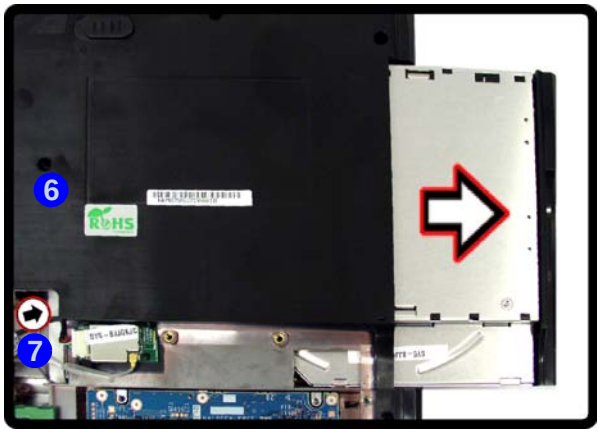
a.



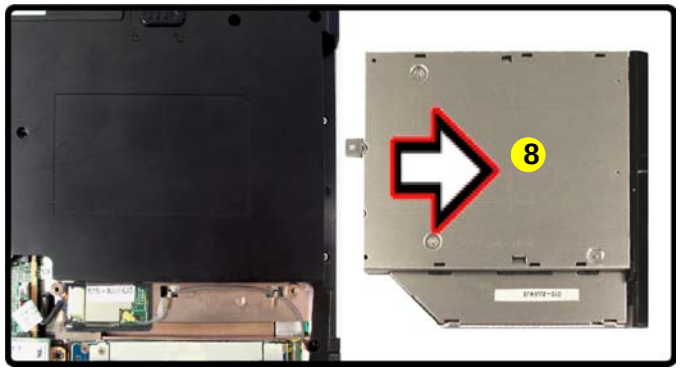
b.



c.



d.



5. HDD Bay Cover
8. Optical Device

- 5 Screws

Figure 12
Keyboard Removal

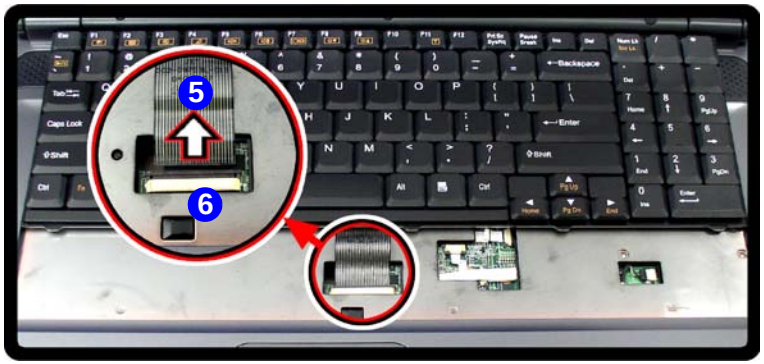
a. Press the four latches to release the keyboard.
b. Lift the keyboard up and disconnect the cable from the locking collar.
c. Remove the keyboard.

Removing the Keyboard

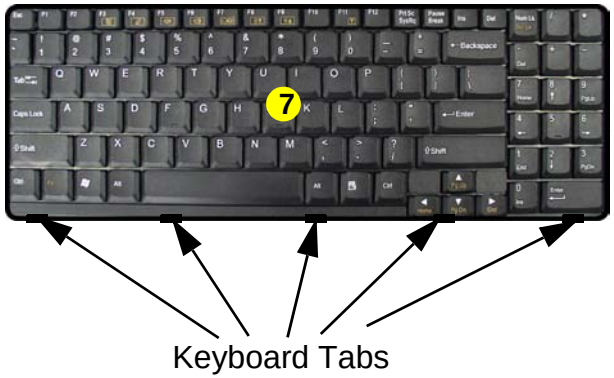
1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Press the **four** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
3. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable (***Figure b***).
4. Disconnect the keyboard ribbon cable 5 from the locking collar socket 6.
5. Carefully lift up the keyboard 7 (***Figure c***) off the computer.

a.

b.



c.



Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **five** keyboard tabs at the bottom of the keyboard with the slots in the case.

7. Keyboard

Appendix A:Part Lists

This appendix breaks down the ***M670SU/M675SU*** series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

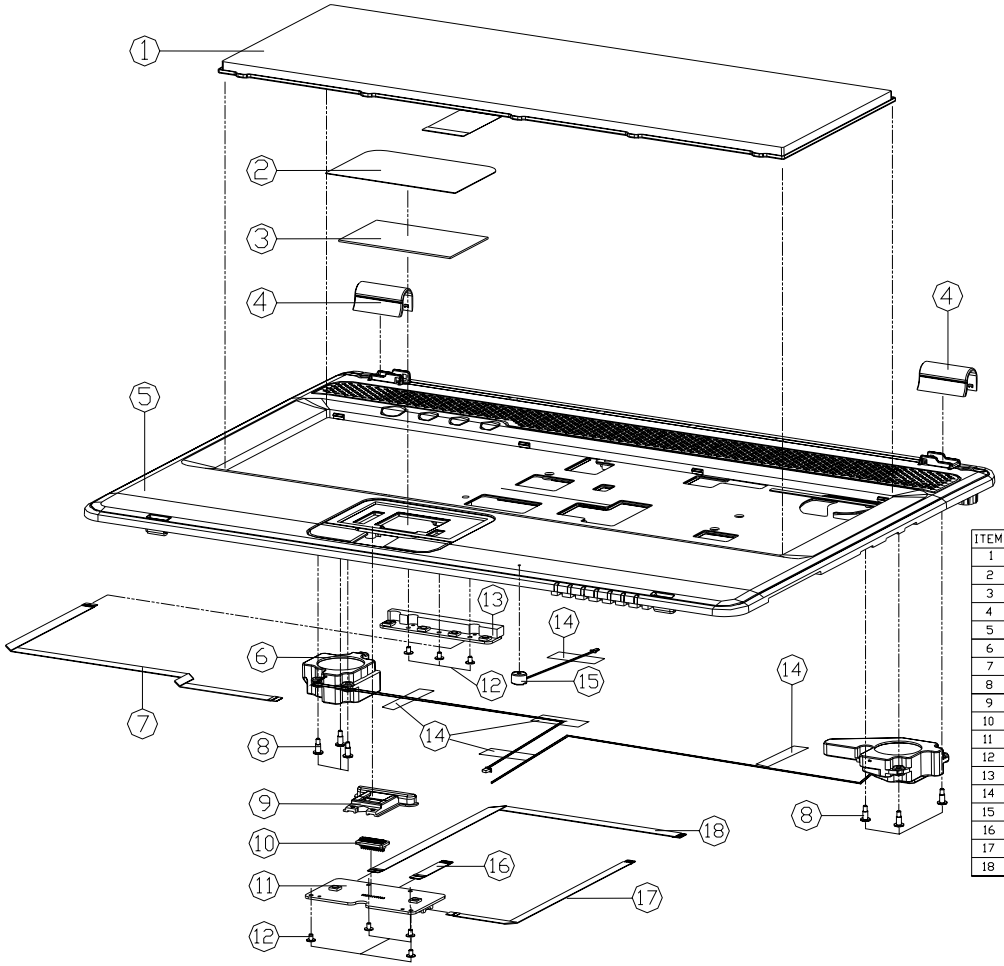
Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A - 1
Part List Illustration Location

Part	Pages#
Top - (M670SU)	*page A - 3*
Top without Fingerprint - (M670SU)	*page A - 4*
Top - (M675SU)	*page A - 5*
Top without Fingerprint - (M675SU)	*page A - 6*
Bottom - (M670SU/M675SU)	*page A - 7*
LCD - (M670SU/M675SU)	*page A - 8*
Combo - (M670SU/M675SU)	*page A - 9*
Dual DVDRW - (M670SU/M675SU)	*page A - 10*

Top (M670SU)

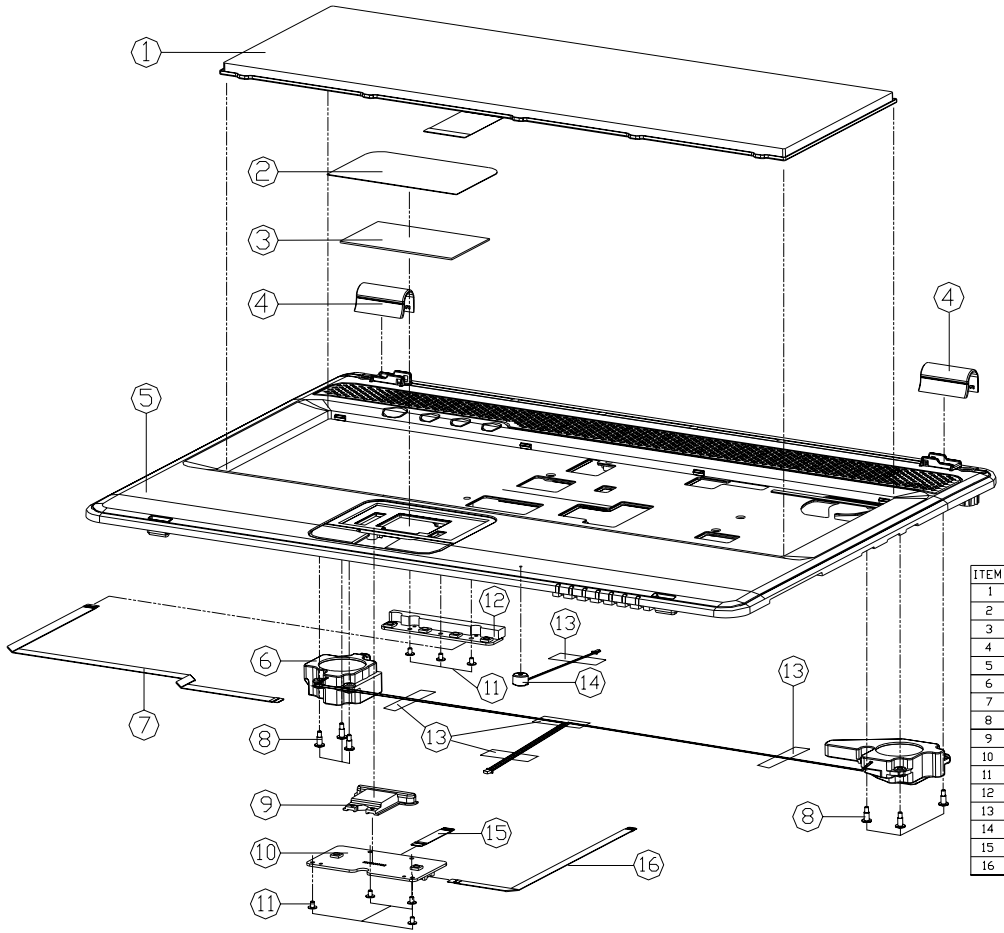


ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-D90T0-012-1	
2	TOUCHPAD M1.4K3025+A70V(印刷X變更尺寸公差) M670SU無鉛	6-40-M67U2-011	
3	TOUCH PAD TM61PDZIR389 M660JE 無鉛	6-49-M66E2-010	
4	HINGE COVER PC+ABS(GE-C6200/BK1A382) M670S 無鉛	6-42-M67U2-010	
5	TOP CASE MODULE M670SU 無鉛	6-39-M67U2-012	
6	SPEAKER-L/R 16MM,8Ω 1.5W 40HM FC-16MM-CL180 W/CABLE M670U 無鉛	6-23-5M67U-010	
7	FFC CABLE FOR PWR-HOTKEY/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-040	
8	SCREW FOR SPEAKER M2 無鉛 D700T	6-35-Z0Z20-000	
9	FINGERPRINT CAP MODULE M670SU 無鉛	6-42-M67U2-200	
10	FINGERPRINTER BOARD V2.0 M660SU 無鉛	6-77-M66UF-D02	
11	CLICK BOARD V3.0 M670SU 無鉛	6-77-M67U2-D03	
12	SCREW M2*3L KI NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
13	POWER HOT BOARD V2.0 M670SU 無鉛	6-77-M67U5-D02	
14	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
15	MIC 6MM,SCW625-TEL-D 0V/2V 22K W/CABLE(灰色) L=160MM M556J 無鉛	6-23-EM55G-011	
16	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5 無鉛	6-43-M66N0-030	
17	FFC CABLE FOR CLICK/B 4P P=1.0MM M670SU 無鉛	6-43-M67U0-030	
18	FFC CABLE FOR FINGERPRINT/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-020	

Figure A - 1
Top (M670SU)

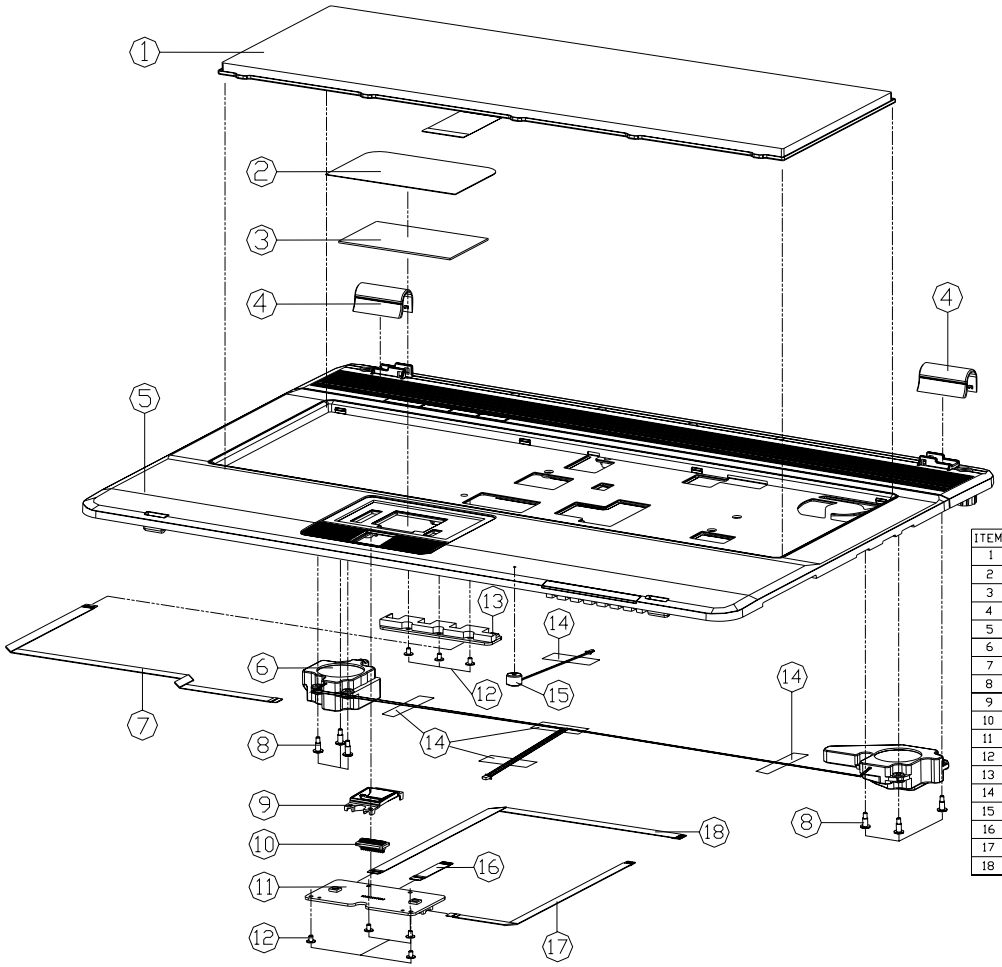
Top without Fingerprint (M670SU)

Figure A - 2
Top without Fingerprint (M670SU)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-D90T0-012-1	
2	TOUCHPAD MYLAR(65+PET)(印刷以實際尺寸公差) M670U 無鉛	6-40-M67U2-011	
3	TOUCH PAD TM61PDZIR389 M660JE 無鉛	6-49-M66E2-010	
4	HINGE COVER PC+ABS(GE-C6200/BK1A382) M67US 無鉛	6-42-M67U2-010	
5	TOP CASE MODULE M670SU 無鉛	6-39-M67U2-012	
6	SPEAKER-L/R 8Ω4W 15φ 40MM FG-16MM-0.1M W/CABLE M670SU 無鉛	6-23-5M67U-010	
7	FFC CABLE FOR PWR-HOTKEY/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-040	
8	SCREW FOR SPEAKER M2 無鉛 D700T	6-35-Z0Z20-000	
9	DUMMY FINGERPRINT CAP MODULE M670SU 無鉛	6-42-M67U2-300	
10	CLICK BOARD W/O FP M670SU 無鉛	6-77-M67U2-003-1	
11	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
12	POWER HOT BOARD V2.0 M670SU 無鉛	6-77-M67U5-002	
13	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
14	MIC CARD(SCREW)5+FIL-D INTGY+ZX W/CABLE(灰色) L=160MM 無鉛	6-23-EM55G-011	
15	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5 無鉛	6-43-M66N0-030	
16	FFC CABLE FOR CLICK/B 4P P=1.0MM M670SU 無鉛	6-43-M67U0-030	

Top (M675SU)

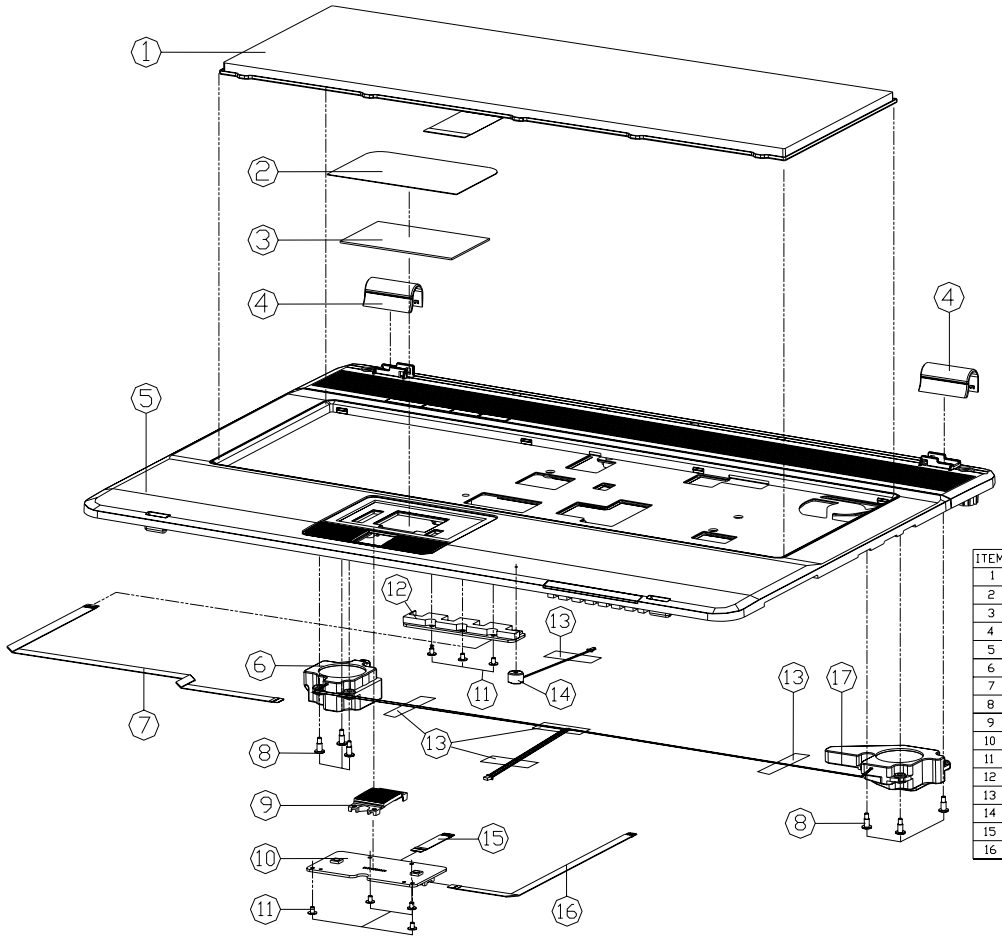


ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-D90T0-012-1	
2	TOUCHPAD MYLAR(BB35+4972W+印刷) M675SU 無鉛	6-40-M6752-020	
3	TOUCH PAD TM61PDZIR389 M660JE 無鉛	6-49-M66E2-010	
4	HINGE COVER PC+ABS(GE-C6200/BK1A382) M670S 無鉛	6-42-M67U2-010	
5	TOP CASE MODULE M675SU 無鉛	6-39-M6752-011	
6	SPEAKER-L/R 8ΩM.5W 15φ 40HM TG-1609A-01.8±0 W/CABLE M670U 無鉛	6-23-5M67U-010	
7	FFC CABLE FOR PWR+HOTKEY/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-040	
8	SCREW FOR SPEAKER M2 無鉛 D700T	6-35-Z0Z20-000	
9	FINGERPRINT CAP PC+ABS(GE-C6200/BK1A382) M675SU 無鉛	6-42-M6752-0D0	
10	FINGERPRINTER BOARD V2.0 M660SU 無鉛	6-77-M66UF-D02	
11	CLICK BOARD V3.0 M670SU 無鉛	6-77-M67U2-D03	
12	SCREW M2*3L KI NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
13	POWER HOT BOARD V2.0 M675SU 無鉛	6-77-M67U5-D02-1	
14	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
15	WC-0805E0R025-ITL-D 0V(5V) 2ZR W/CABLE(灰色)1.5±0.05MM M675SU 無鉛	6-23-EM55G-011	
16	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5 無鉛	6-43-M66N0-030	
17	FFC CABLE FOR CLICK/B 4P P=1.0MM M670SU 無鉛	6-43-M67U0-030	
18	FFC CABLE FOR FINGERPRINT/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-020	

Figure A - 3
Top (M675SU)

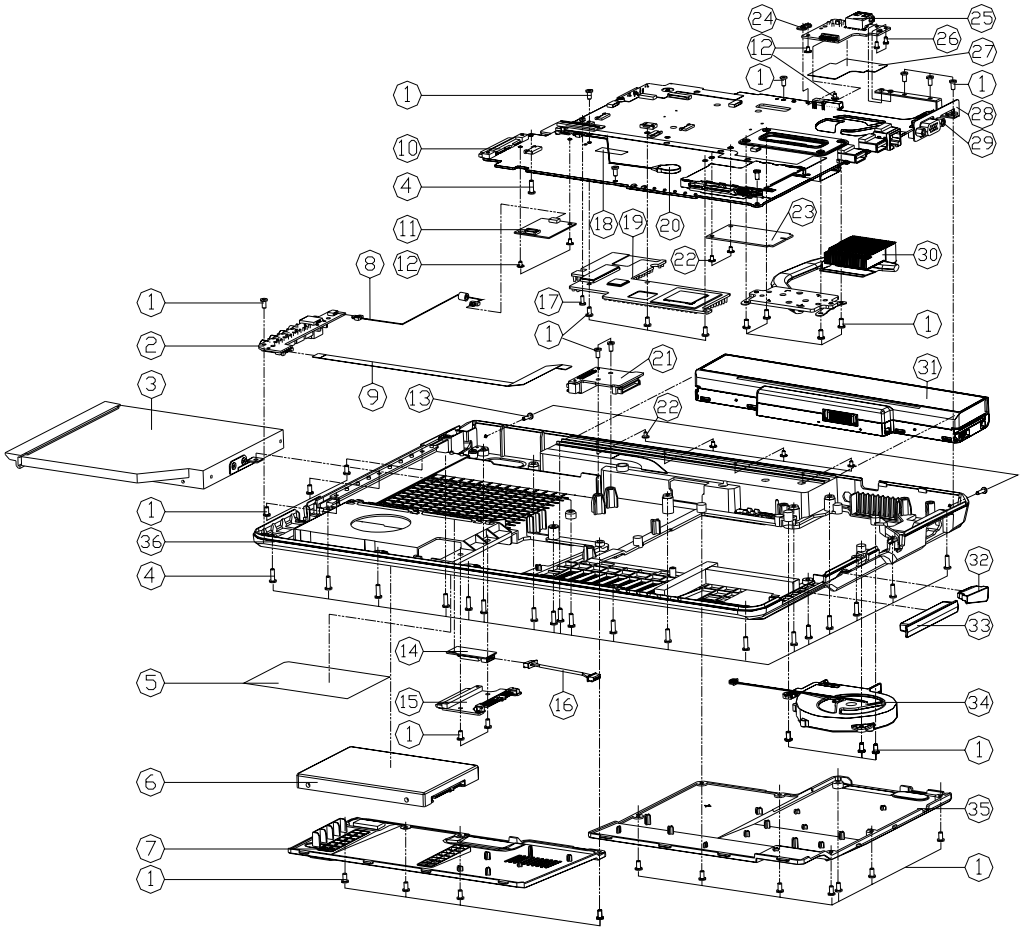
Top without Fingerprint (M675SU)

Figure A - 4
Top without Fingerprint (M675SU)



ITEM	PART NAME	PART NO	REMARK
1	KEYBOARD(OPTION)	6-80-D90T0-012-1	
2	TOUCHPAD MYLAR(88X35+4972V+印刷) M675SU 無鉛	6-40-M6752-020	
3	TOUCH PAD TM61PDZIR389 M660.JE 無鉛	6-49-M66E2-010	
4	HINGE COVER PC+ABS(GE-C6200/BK1A382) M670S 無鉛	6-42-M67U2-010	
5	TOP CASE MODULE M675SU 無鉛	6-39-M6752-011	
6	SPEAKER-L/R 8ΩW.5W 15φ 40MM FG-8A8H-CL80 W/CABLE M670U 無鉛	6-23-5M67U-010	
7	FFC CABLE FOR PWR-HOTKEY/B 6P P=1.0MM M670SU 無鉛	6-43-M67U0-040	
8	SCREW FOR SPEAKER M2 無鉛 D700T	6-35-Z0Z20-000	
9	BUMPY FINGERPRINT CAP PC+ABS(GE-C6200/BK1A382) M675U 無鉛	6-42-M6752-0E0	
10	CLICK BOARD W/O FP V3.0 M670SU 無鉛	6-77-M67U2-D03-1	
11	SCREW M2*3L K1 NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
12	POWER HOT BOARD V2.0 M675SU 無鉛	6-77-M67U5-D02-1	
13	TAPE MYLAR (C),MYLAR M550J 無鉛	6-40-M55J2-030	
14	MIC 6MM(SCD6025-FIL-01 W/WZY) ZZX W/CABLE(灰色) L=340MM 無鉛	6-23-EM55G-011	
15	FFC CABLE FOR TOUCHPAD BOARD 12P PITCH=0.5 無鉛	6-43-M66N0-030	
16	FFC CABLE FOR CLICK/B 4P P=1.0MM M670SU 無鉛	6-43-M67U0-030	

Bottom (M670SU/M675SU)

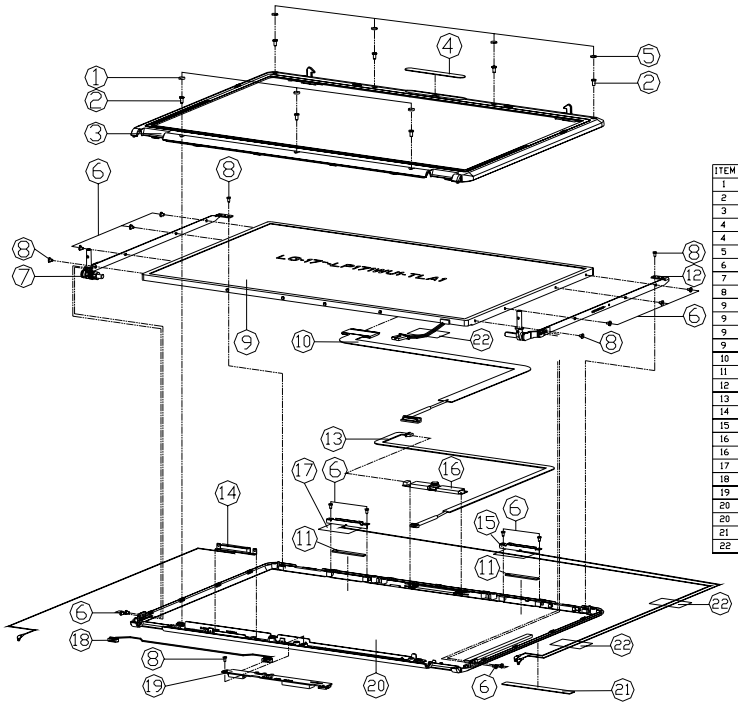


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
2	AUDIO BOARD V2.0 M670SU	6-77-M67U8-D02	
3	DVD/DUAL RW 8X ASS'Y M670SU	6-79-M67UQ-000	
3	COMBO 24X ASSY M670SU	6-79-M67UX-000	
4	SCREW M2.5*8L K1 BK/Z NY ICT	6-35-B6125-8R0	
5	PRODUCT LABEL M670SU	6-45-M67U3-011	
5	PRODUCT LABEL M675SU	6-45-M6753-011	
6	W/O HDD ASS'Y M660N	6-79-M66NJ-010	
7	HDD COVER MODULE M670SU	6-42-M67UJ-101	
8	WIRE CABLE FOR MDC M670SU	6-43-M67UU-010	
9	FFC CABLE FOR AUDIO/D ISP P=15MM M670SU	6-43-M67U0-010	
10	MAIN BORD V40 (128M VRAM) M670SU	6-77-M67U0-D04-1	
10	MAIN BORD V4.0 M670SU	6-77-M67U0-D04	
10	MAIN BORD V50 (64M VRAM) M670SU	6-77-M67U0-D05	
10	MAIN BORD V50 (128M VRAM) M670SU	6-77-M67U0-D05-1	
11	MODEM CASTLENET ML3054ACN7) ASS'Y M670SU	6-79-M67UU-010	
11	MODEM OCEM (MOTOROLA) ML3054 ASS'Y M670SU	6-79-M67UU-020	
12	SCREW M2*3L K1 BK/Z ICT NY (#3.5 t=0.3)	6-35-B6120-3RE	
13	SCREW M2*6L K1 BZ ICT NY	6-35-B6120-6RA	
14		6-88-M62E5-390	
15	HDD CONVERTER BOARD V30 M670SU	6-77-M67UJ-D03	
16	WIRE CABLE FOR BLUETOOTH M670SU	6-43-M67UB-010	
17	SCREW M2*5L K1 NI ICT NY	6-35-B1120-5R0	
18	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
19	HEAT SINK FOR VGA (M660SU)	6-33-M66UN-010	
20		6-23-22015-P39	
21	DDD CONVERTER BOARD V20 M670SU	6-77-M67UZ-D02	
22	SCREW M2*3L K1 BZ ICT NY (t0=#4.5,DT=#4)	6-35-B6120-3RD	
23		6-88-M7702-701	
24		6-33-M66NS-051	
25	USB BOARD V2.0 M670SU	6-77-M67U3-D02	
26	SCREW M2*4L K1 NI ICT (D=#4.0,D1=#5)	6-35-B1120-4RB	
27	MYLAR FOR DC IN PET T=0.25MM M670SU	6-40-M67U3-010	
28	ID BRACKET SUS304 T=0.8MM M670SU	6-33-M67U3-020	
29	HEX STUD SUM22 NI-PL 10mm NY	6-34-96002-00A	
30	CPU HEATSINK MODULE(GB04H) M670SU	6-31-M67UN-100	
31		6-87-M66NS-453	
31		6-87-M66NS-4C3	
32	CARD READER RUBBER COVER	6-47-M66NE-010	
33	NEW CARD RUBBER M670SU	6-47-M67U3-010	
34	CPU FAN MODULE(12H) M670SU	6-31-M67UN-200	
35	CPU COVER MODULE M670SU	6-42-M67US-101	
36	BOTTOM CASE MODULE M670SU	6-39-M67U3-012	

Figure A - 5
Bottom (M670SU/ M675SU)

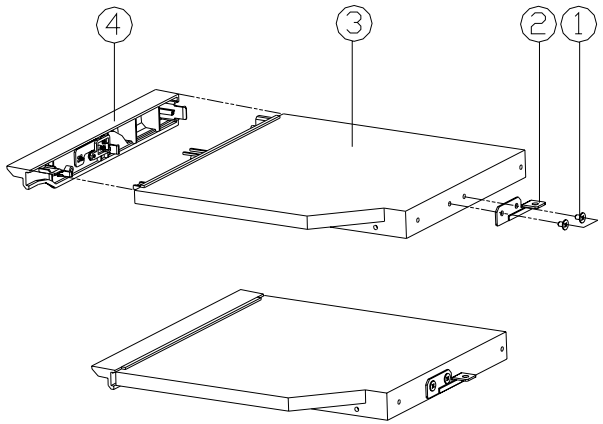
LCD (M670SU/M675SU)

Figure A - 6
LCD (M670SU/ M675SU)



ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER BOTTOM RUBBER SILICONE M670SU	6-47-M67U1-020	
2	SCREW M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
3	LCD FRONT COVER MODULE M670SU	6-39-M67U1-012	
4	CCD COSMETIC PMMA T=0.5MM	6-42-M67U1-030	
4	W/O CCD COSMETIC PMMA T=0.5MM M670SU	6-42-M67U1-040	
5	FRONT COVER TOP RUBBER SILICONE 670SU	6-47-M67U1-010	
6	SCREW M2*3L K1 NI ICT GTY-PATCH	6-35-B1120-3RE	
7	HINGE L SECC T=1MM M670SU	6-33-M67U1-040	
8	[illegible]	6-35-C1120-4RB	
9	[illegible]	6-50-NA265-L00	FOR LG
9	[illegible]	6-50-N7268-G01	FOR AU
9	[illegible]	6-50-N7268-G00	FOR AU
9	[illegible]	6-50-NA265-L02	FOR LG
10	WIRE CABLE FOR LCD M670SU	6-43-M67U1-010	
11	SPONGE (6046A25) CR4305 M670SU	6-47-0019A-602	
12	HINGE R SECC T=1MM M670SU	6-33-M67U1-030	
13	WIRE CABLE FOR CCD M670SU	6-43-M67U1-011	
14	[illegible]	6-23-7M67U-031	
15	[illegible]	6-23-7M67U-021	
16	CMOS VIDEO CAMERA [illegible]	6-88-M55GC-612	(OPTION)
16	CMOS VIDEO CAMERA [illegible]	6-88-M66NC-491	(OPTION)
17	[illegible]	6-23-7M67U-011	(OPTION)
18	WIRE CABLE FOR INVERTER M670SU	6-43-M67UR-010	
19	INVERTER MODULE FOR [illegible]	6-76-D800R-011-1A	
20	LCD BACK COVER MODULE M670SU	6-39-M67U1-022	FOR M670SU
20	LCD BACK COVER MODULE M675SU	6-39-M6751-021	FOR M675SU
21	NAME PLATE-CLEVO LOGO M670SU	6-45-M67U1-010	
22	TAPE MYLAR (C).MYLAR M550J	6-40-M55J2-030	

Combo (M670SU/M675SU)

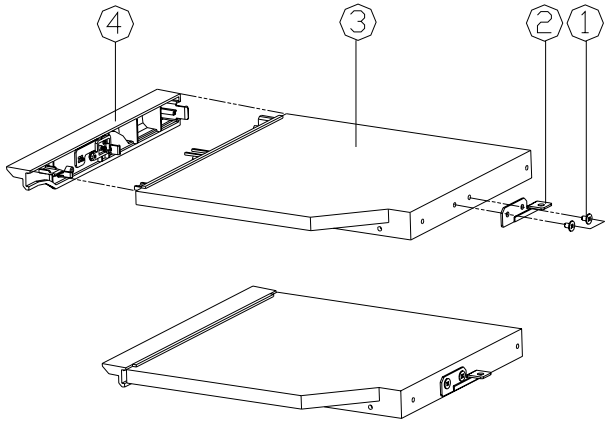


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
2	ODD FIX BRACKET M660N 無鉛	6-33-M66NZ-010	
3	COMBO 5.14" 24X 12.7MM TS-L462D (F/W/GAD) *SUPPORT VISTA *ISSI 無鉛	6-85-907PX-T02	
3	CP-BW/W/S 5.14" 24X 12.7MM COMBO SHOGD F/W/GAD-E (E-M62)*SUPPORT VISTA 無鉛	6-85-907PX-C03	
4	COMBO ODD BEZEL MODULE (咬花處理) M670SU 無鉛	6-42-M67UX-101	

Figure A - 7
Combo (M670SU/ M675SU)

Dual DVDRW (M670SU/M675SU)

Figure A - 8
Dual DVDRW (M670SU/M675SU)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT GTY-PATCH 無鉛	6-35-B1120-3RE	
2	ODD FIX BRACKET M660N 無鉛	6-33-M66NZ-010	
3	NVIDIA N15P-GV BGA 48 256MX8P*8 256MX8P*8 MULTI 2048D/1400/2X1.4 G-WHO SUPPLY V03P 無鉛	6-85-A078X-C08	
4	SUPER MULTI ODD BEZEL MEDIALE(咬花處理) M670SU 無鉛	6-42-M67UQ-101	

Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the ***M670SU/M675SU*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
SYSTEM BLOCK DIAGRAM - Page B - 2	*VT8237A-1 - Page B - 16*	*CHARGER, DC IN - Page B - 30*
CLOCK GENERATOR - Page B - 3	*VT8237A-2 - Page B - 17*	*1.05VS, 1.5V, 2.5VS - Page B - 31*
CPU-1 - Page B - 4	*VT8237A-3 - Page B - 18*	*VCORE - Page B - 32*
CPU-2 - Page B - 5	*HDD & CDROM - Page B - 19*	*1.8V, 0.9VS - Page B - 33*
VN896-1 - Page B - 6	*CARD READER - Page B - 20*	*VDD3, VDD5 - Page B - 34*
VN896-2 - Page B - 7	*NEW CARD SOCKET - Page B - 21*	*EXT GPU 1.0VS/1.2VS - Page B - 35*
VN896-3 - Page B - 8	*LAN - Page B - 22*	*PWR HOT BOARD - Page B - 36*
VN896-4 - Page B - 9	*USB & CCD - Page B - 23*	*AUDIO & MODEM BOARD - Page B - 37*
DDR2-1 - Page B - 10	*HITACHI H8 - Page B - 24*	*CLICK BOARD - Page B - 38*
DDR2-2 - Page B - 11	*CRT & LVDS - Page B - 25*	*USB BOARD - Page B - 39*
VGA G72M-1 - Page B - 12	*CPU FAN, LPC ROM - Page B - 26*	*FINGERPRINT BOARD - Page B - 40*
VGA G72M-2 - Page B - 13	*MINI-PCI & BLUETOOTH - Page B - 27*	*HDD CONVERTER BOARD - Page B - 41*
VGA G72M-3 - Page B - 14	*AUDIO VT1708A/ALC883 - Page B - 28*	*HDD CONVERTER BOARD - Page B - 41*
VGA G72M-4 - Page B - 15	*LED - Page B - 29*	

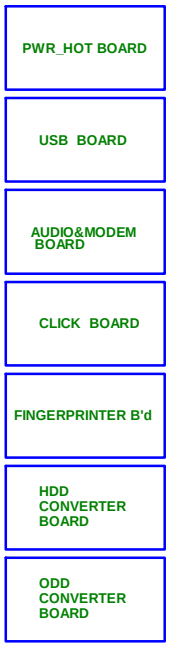
Table B - 1
Schematic Diagrams

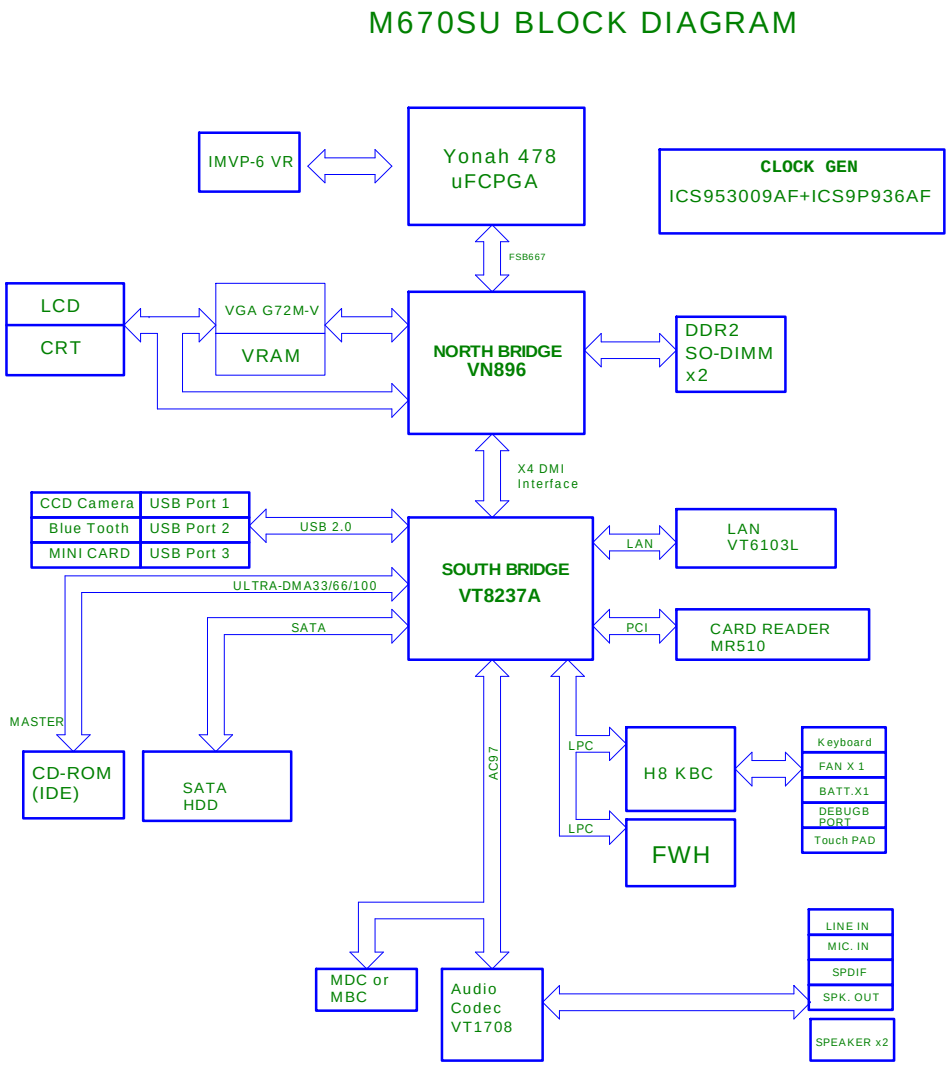
Version Note

The schematic diagrams in this chapter are based upon version 6-7P-M67U8-004. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

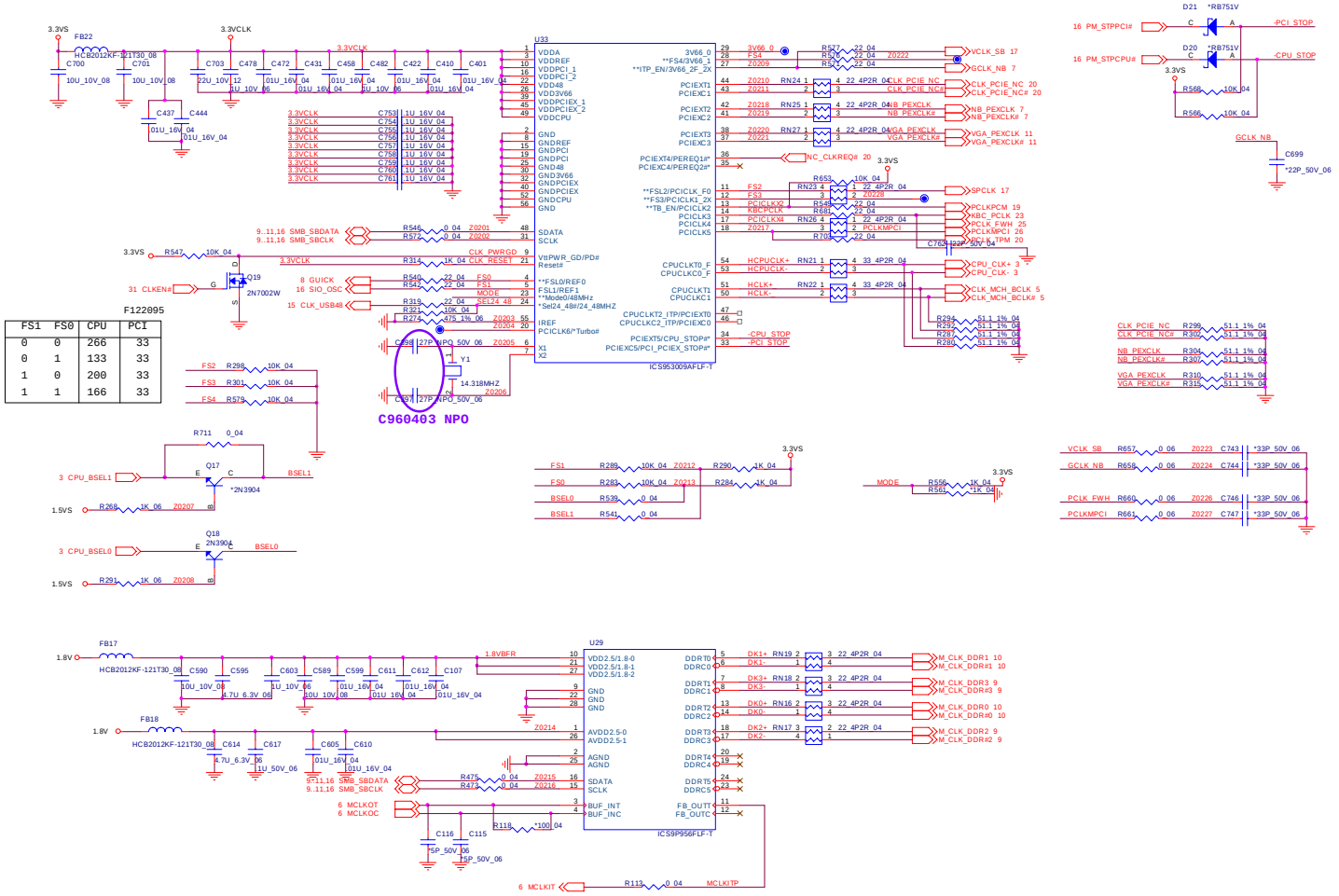
SYSTEM BLOCK DIAGRAM

Sheet 1 of 41
SYSTEM BLOCK DIAGRAM





CLOCK GENERATOR

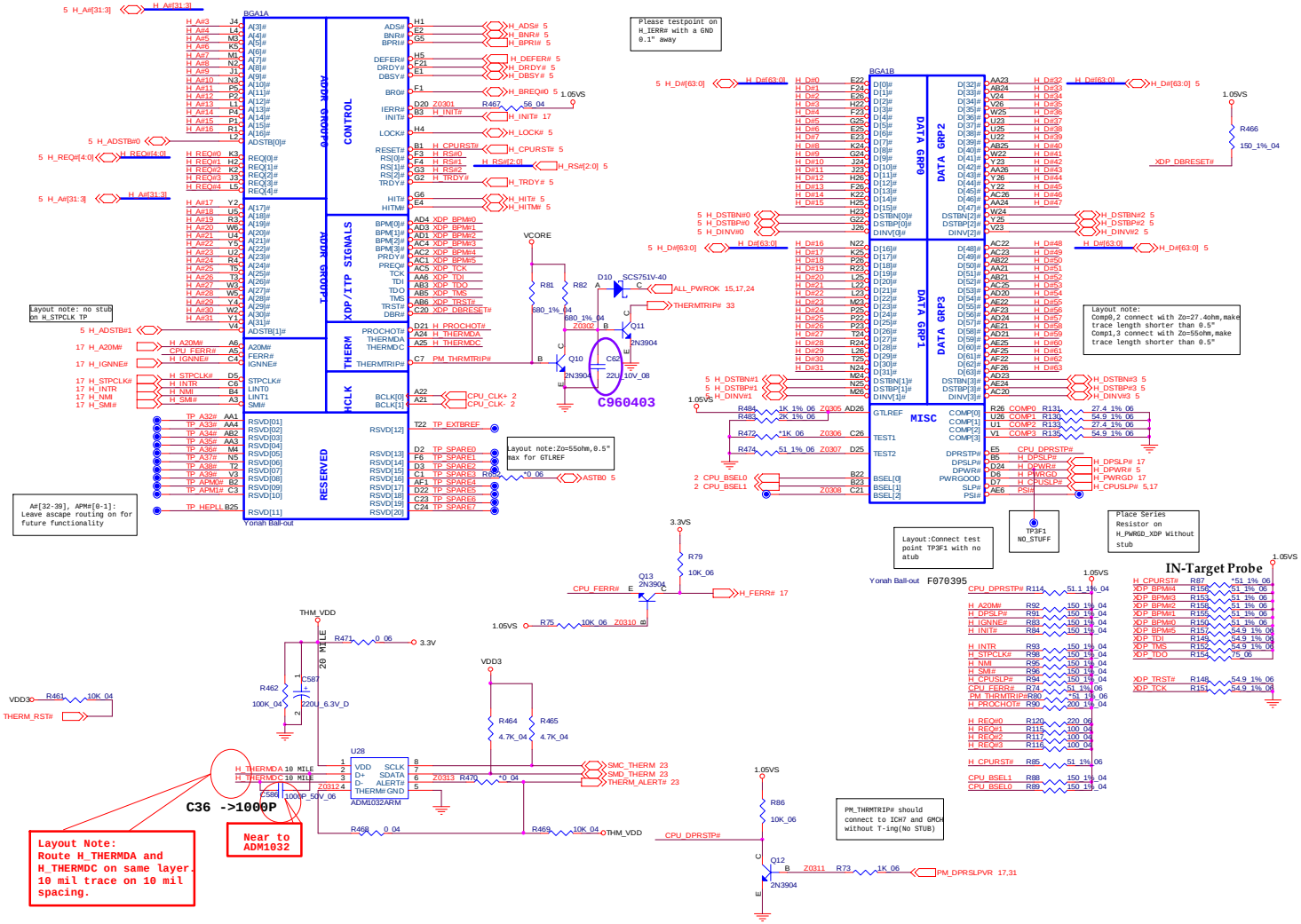


Sheet 2 of 41
CLOCK
GENERATOR

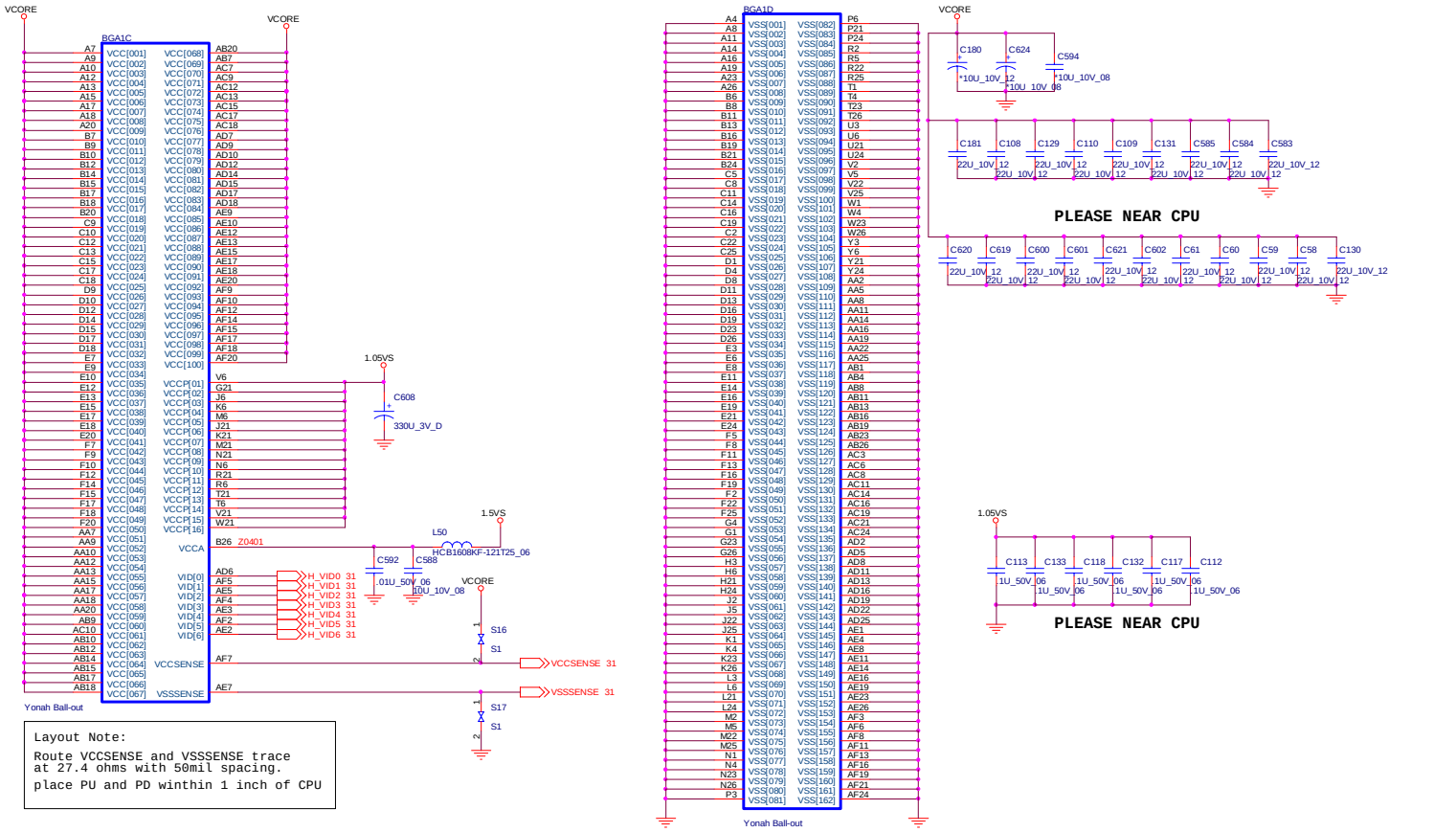
B.Schematic Diagrams

CPU-1

Sheet 3 of 41
CPU-1


BGA1A
BGA1B
ADDR GROUP 0
ADDR GROUP 1
CONTROL
XDP/ITP SIGNALS
THERM
HCLK
RESERVED
DATA GRP0
DATA GRP1
DATA GRP2
DATA GRP3
MISC
Yonah Ball-out
C960403
C36 ->1000P
Near to ADM1032
Layout Note: Route H_THERMDA and H_THERMDC on same layer. 10 mil trace on 10 mil spacing.
IN-Target Probe
ADM1032ARM
THERM_RST#
PM_THRMTRIP# should connect to ICH7 and GMCH without T-ing(No STUB)
Please testpoint on H_IERR# with a GND 0.1" away
Layout note: no stub on H_STPCLK_TP
Layout note:Zo=55ohm,0.5" max for GTLREF
Layout note: Comp0,2 connect with Zo=27.4ohm,make trace length shorter than 0.5" Comp1,3 connect with Zo=55ohm,make trace length shorter than 0.5"
Layout:Connect test point TP3F1 with no atub
Place Series Resistor on H_PWRGD_XDP Without stub
A#[32-39], APM#[0-1]: Leave ascape routing on for future functionality

CPU-2



Layout Note:

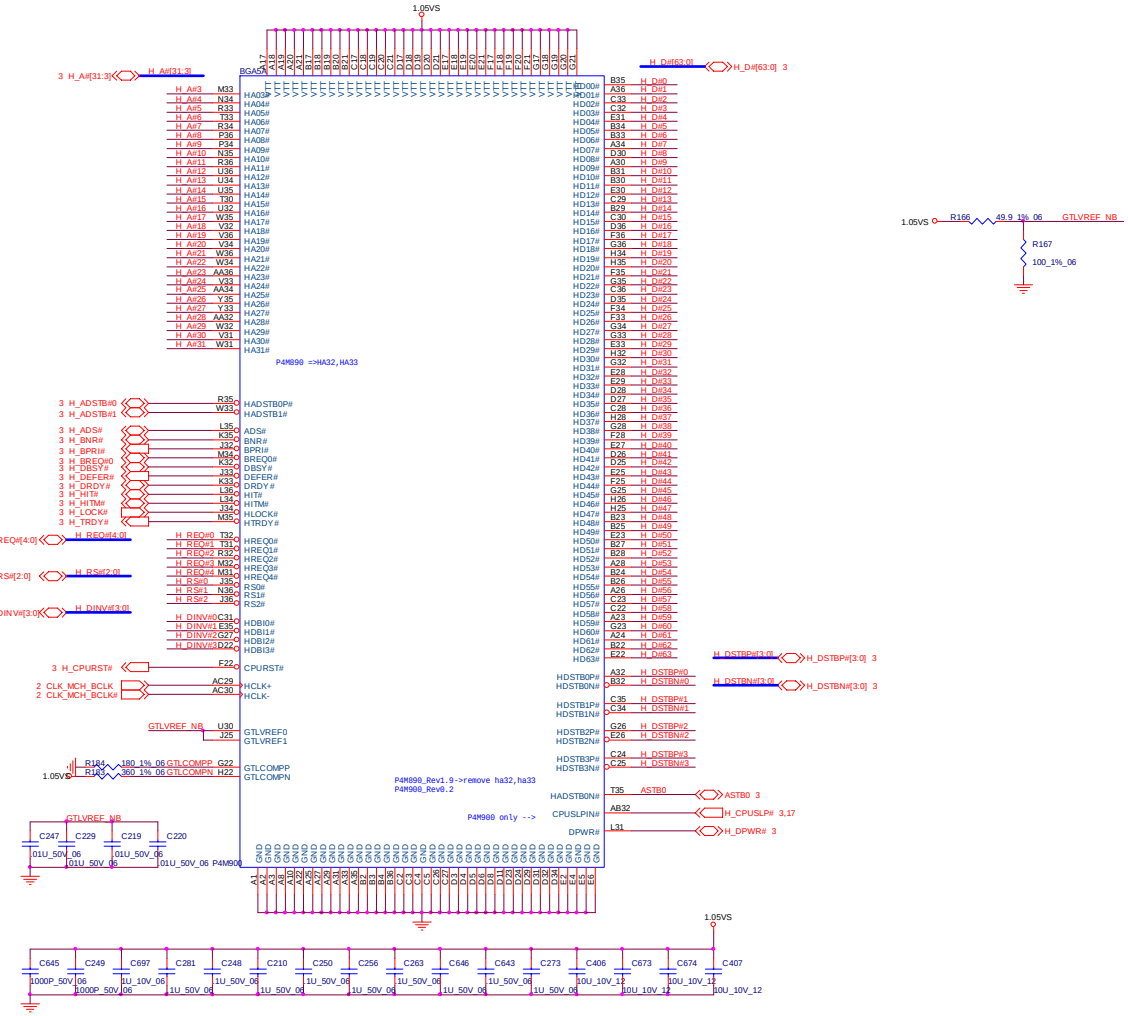
Route VCCSENSE and VSSSENSE trace at 27.4 ohms with 50mil spacing.

place PU and PD winthin 1 inch of CPU

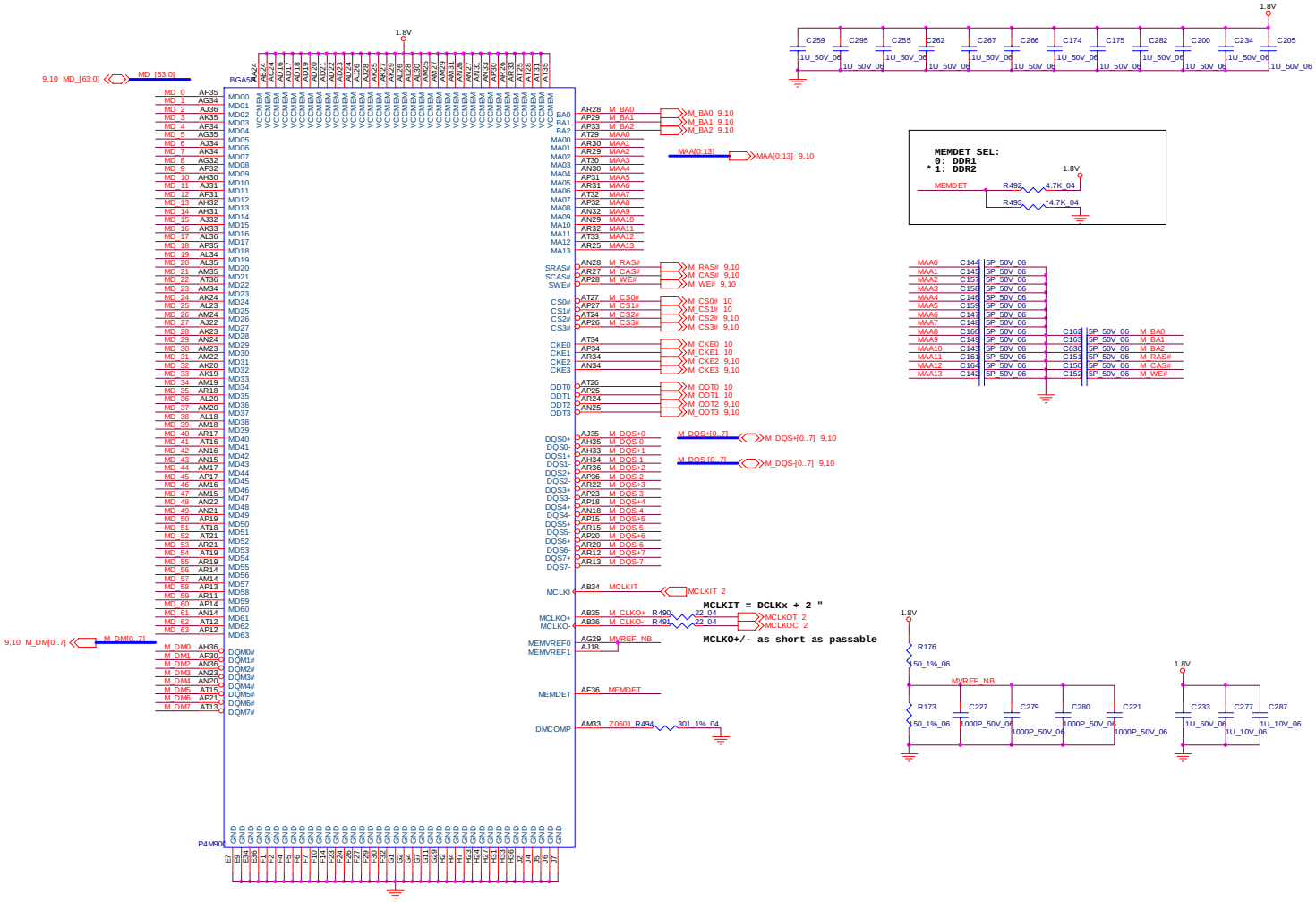
Sheet 4 of 41
CPU-2

VN896-1

Sheet 5 of 41
VN896-1



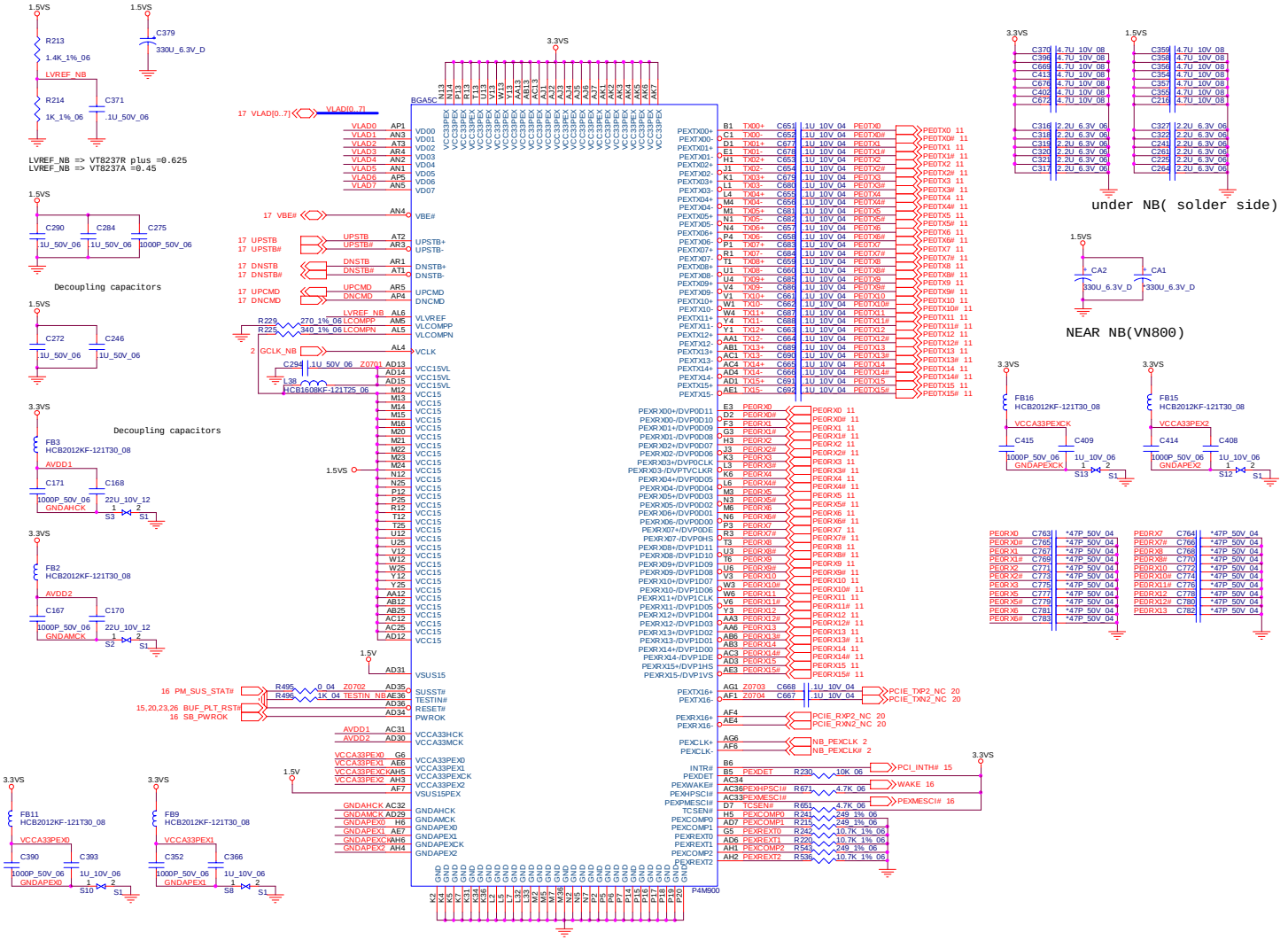
VN896-2



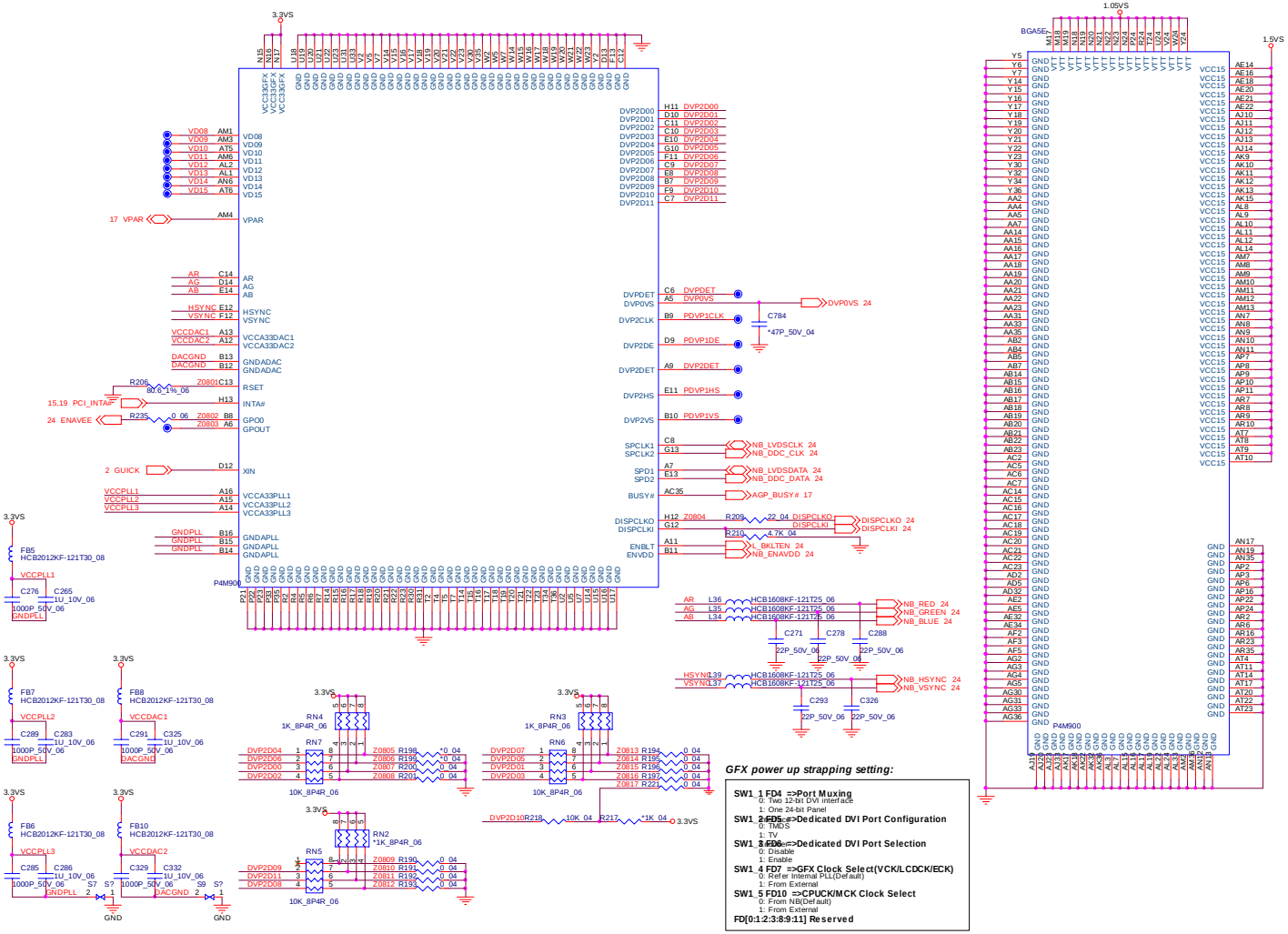
Sheet 6 of 41
VN896-2

VN896-3

Sheet 7 of 41
VN896-3



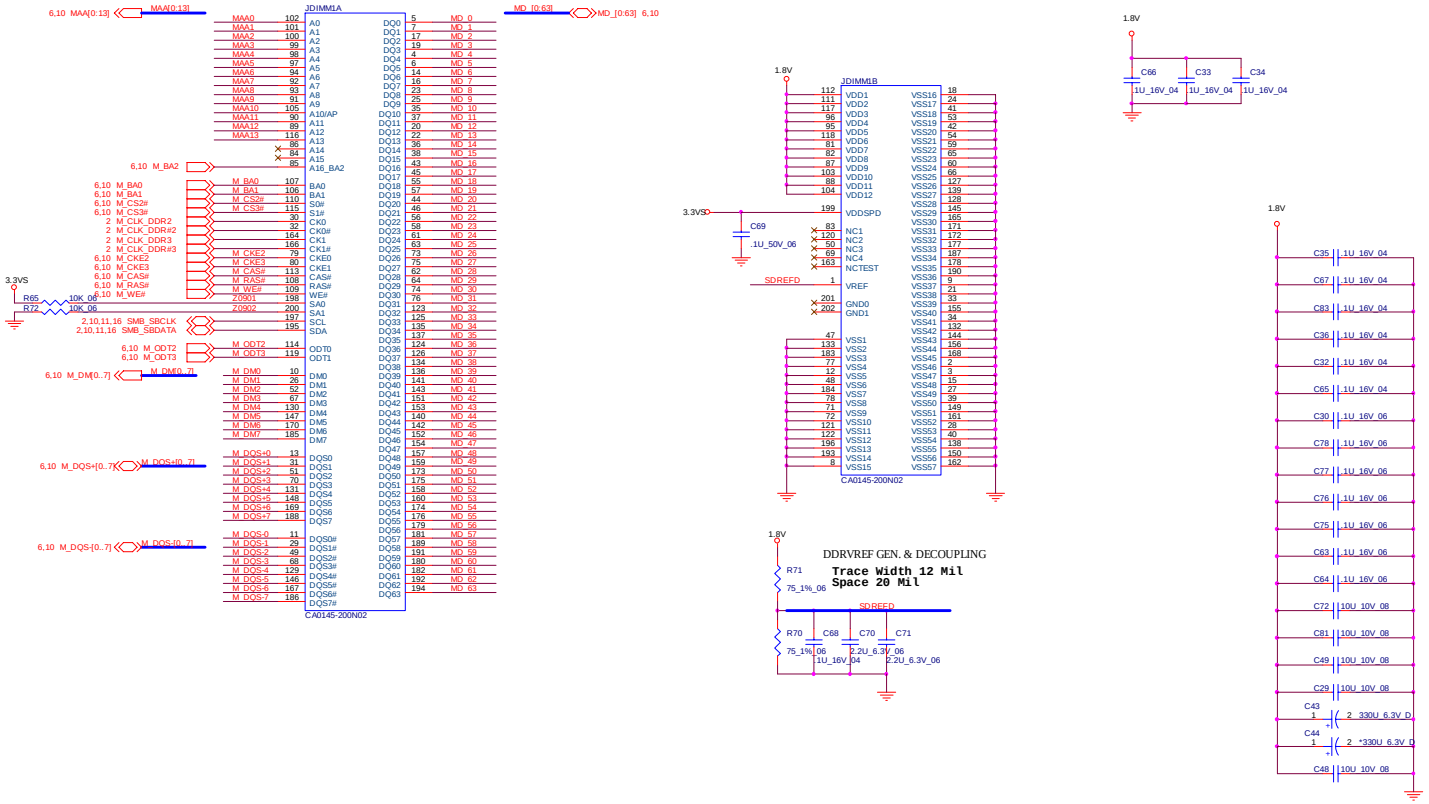
VN896-4



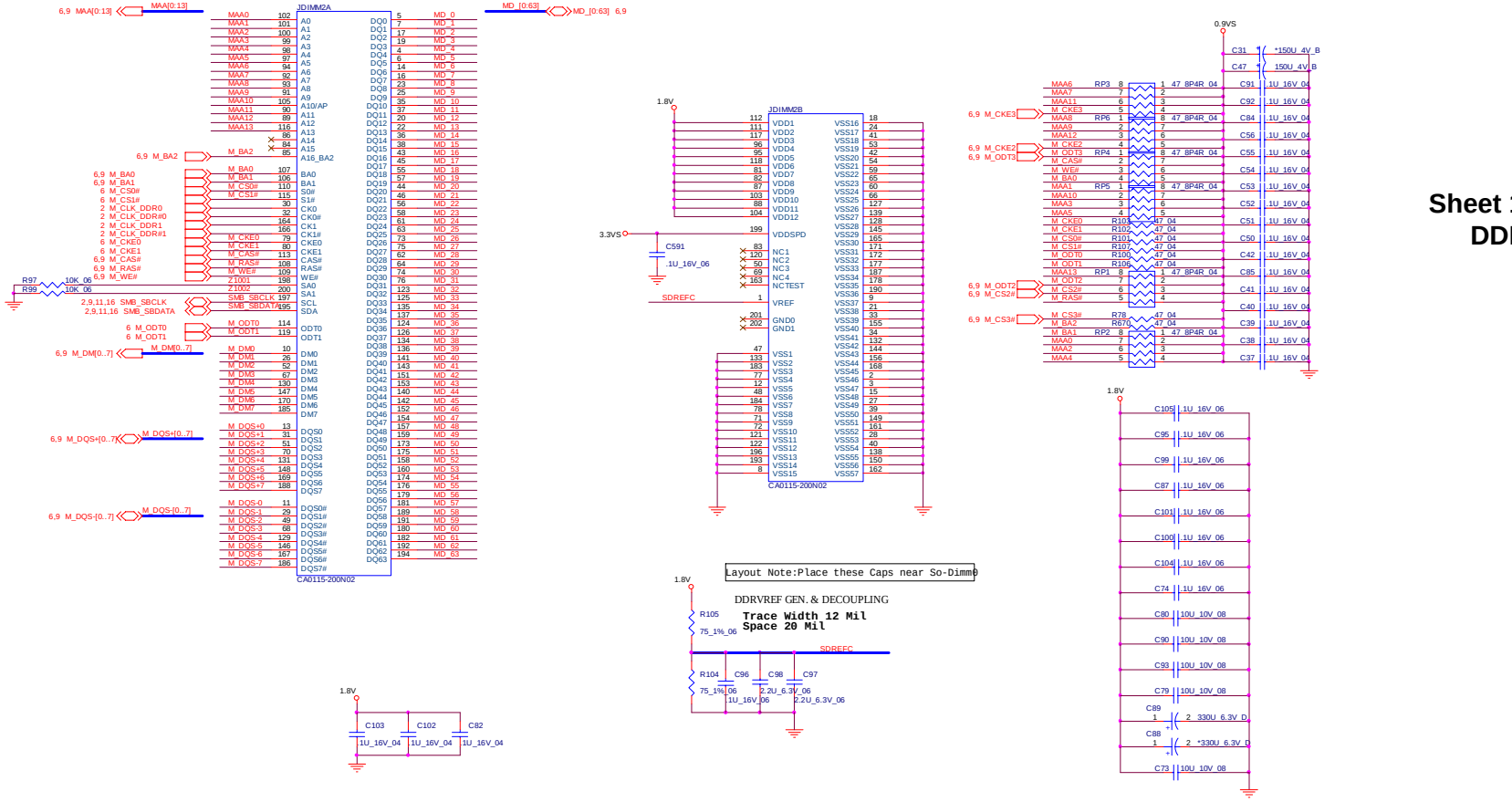
Sheet 8 of 41
VN896-4

DDR2-1

Sheet 9 of 41
DDR2-1



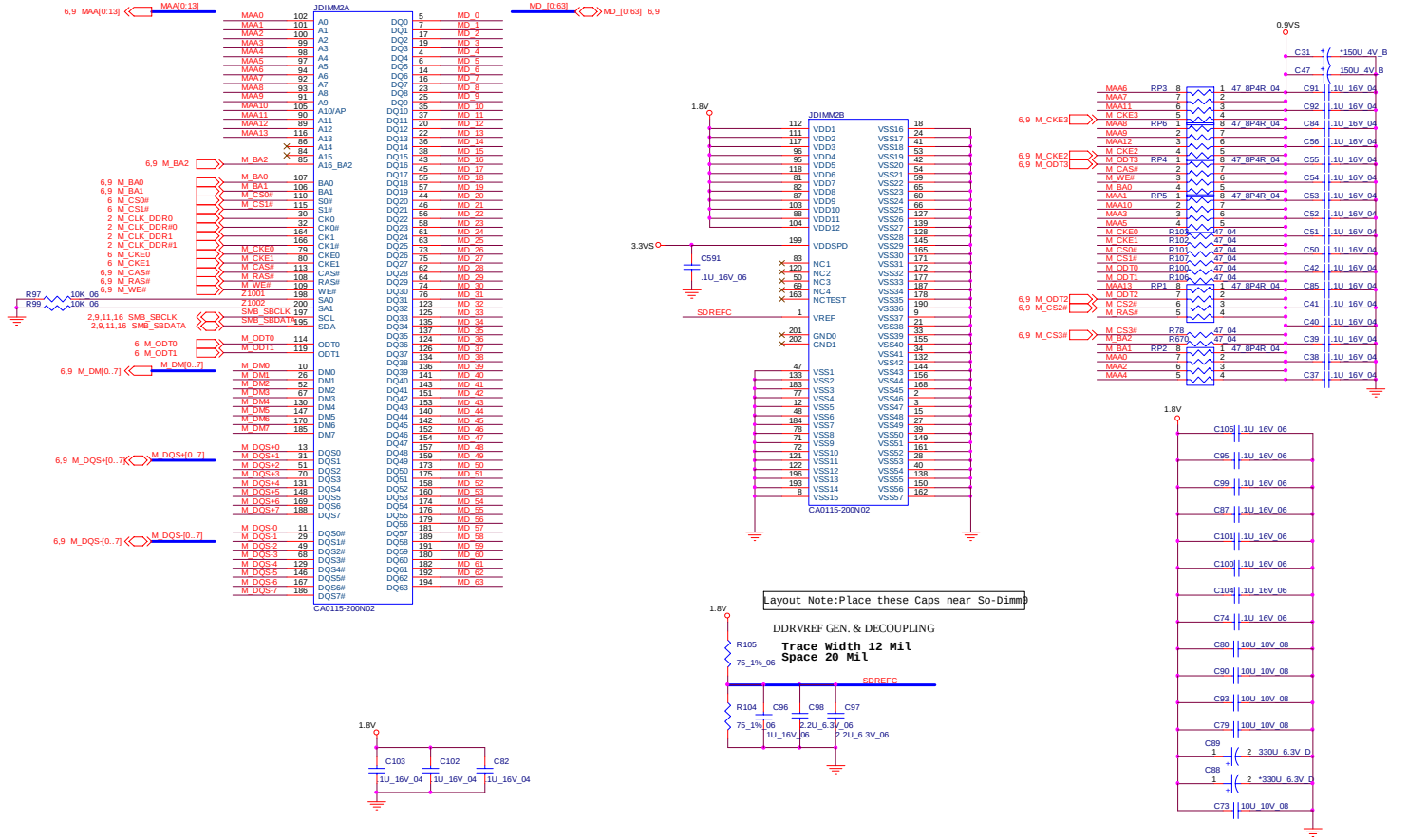
DDR2-2



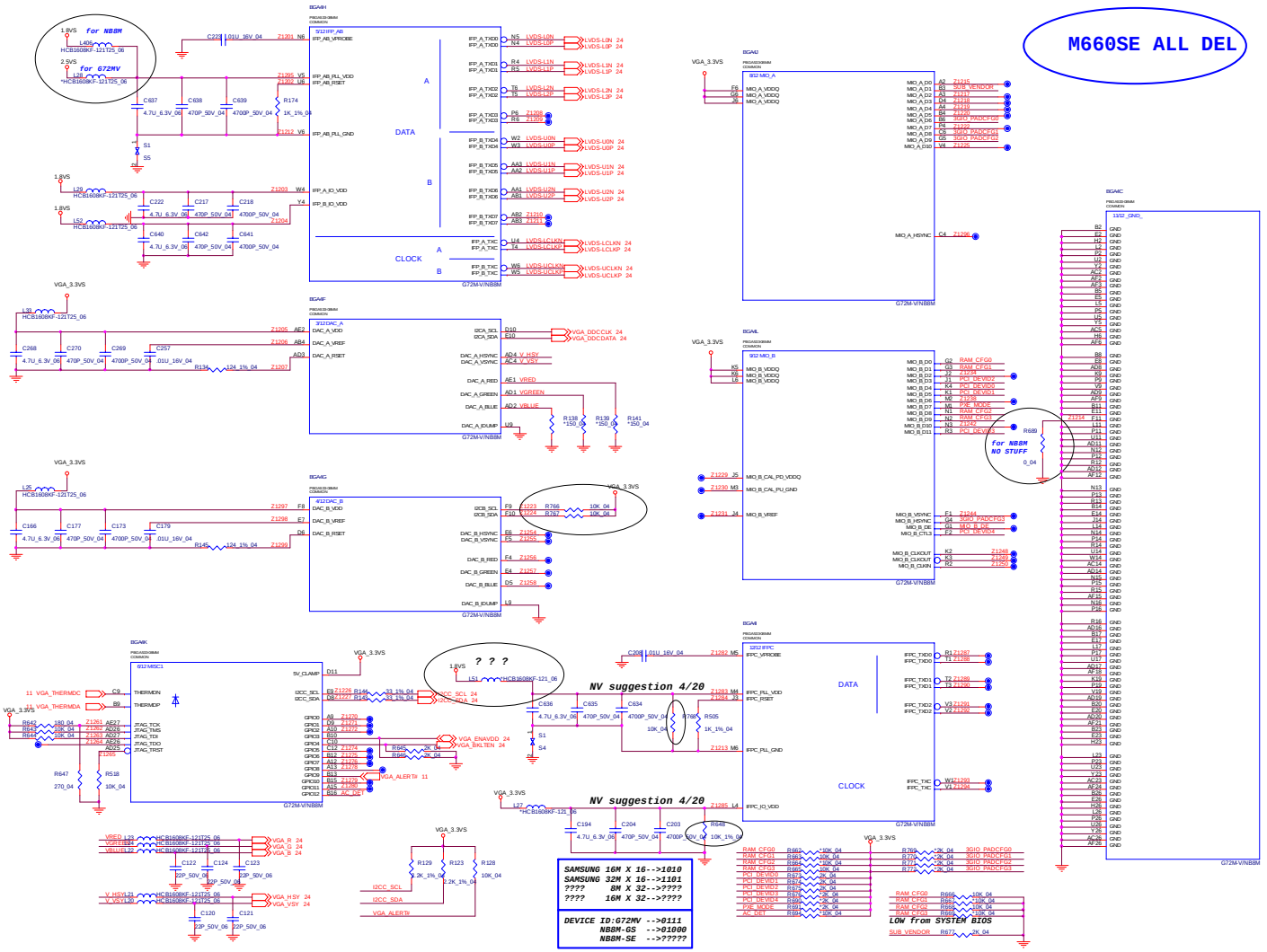
Sheet 10 of 41
DDR2-2

VGA G72M-1

Sheet 11 of 41
VGA G72M-1



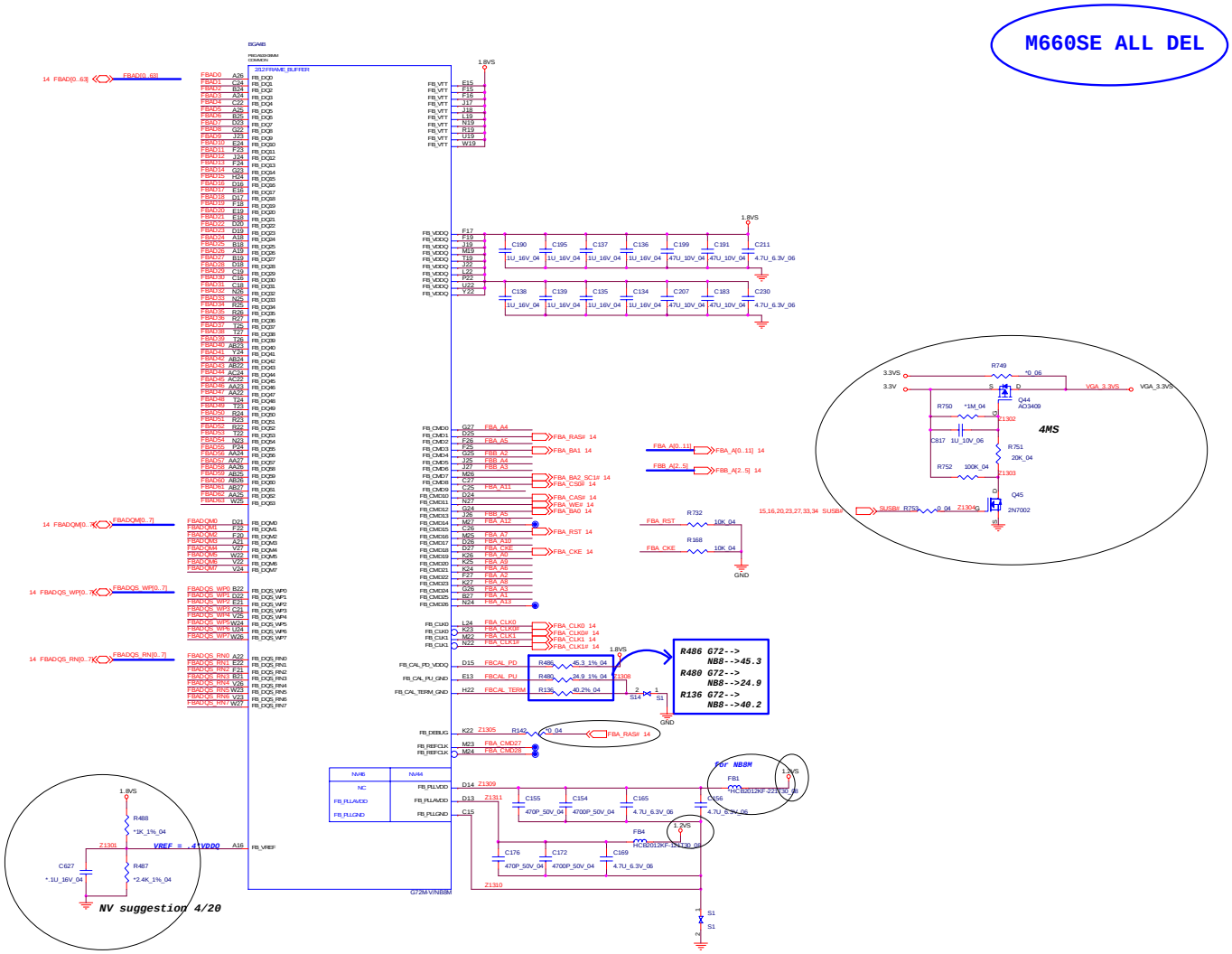
VGA G72M-2



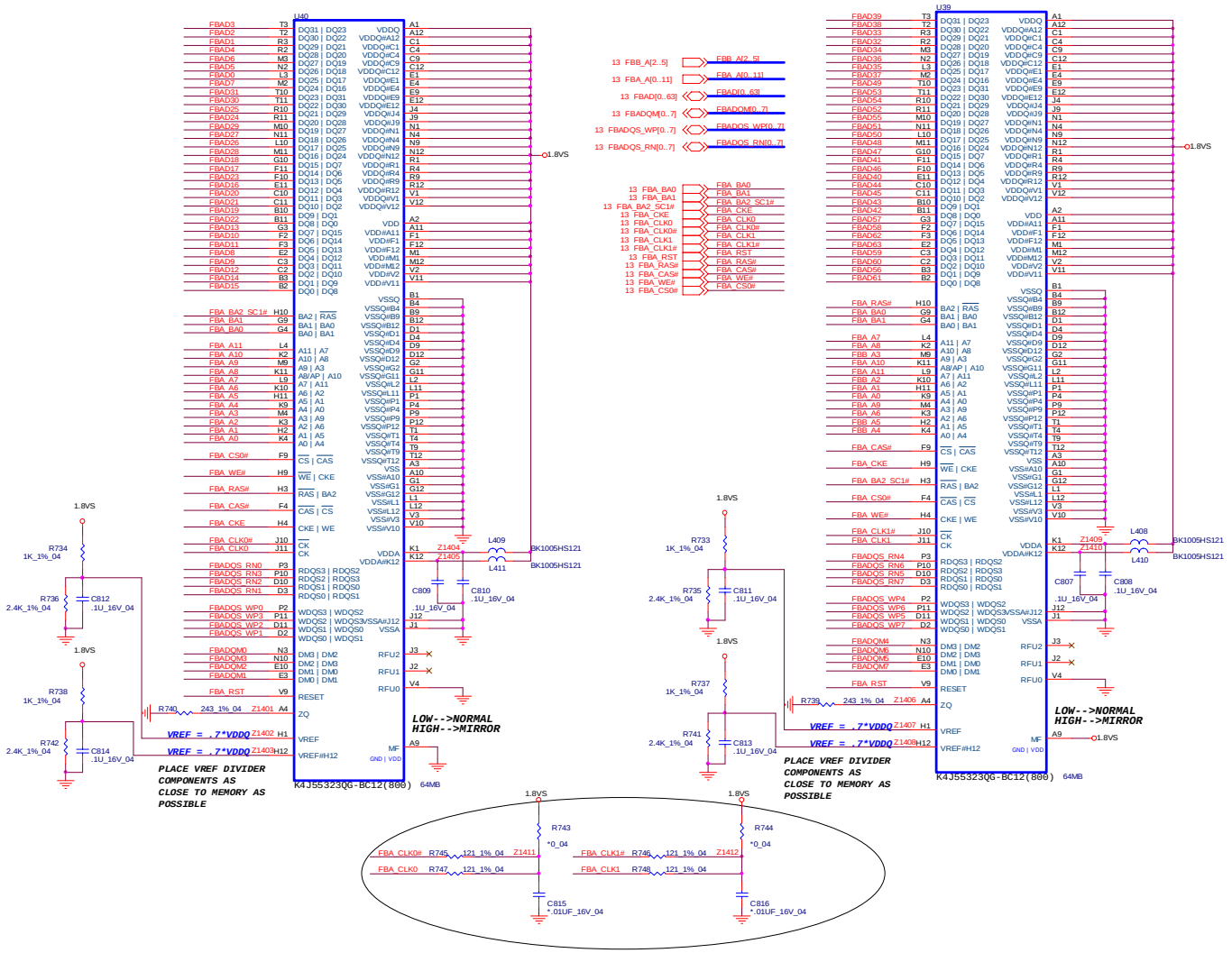
Sheet 12 of 41
VGA G72M-2

VGA G72M-3

Sheet 13 of 41
VGA G72M-3



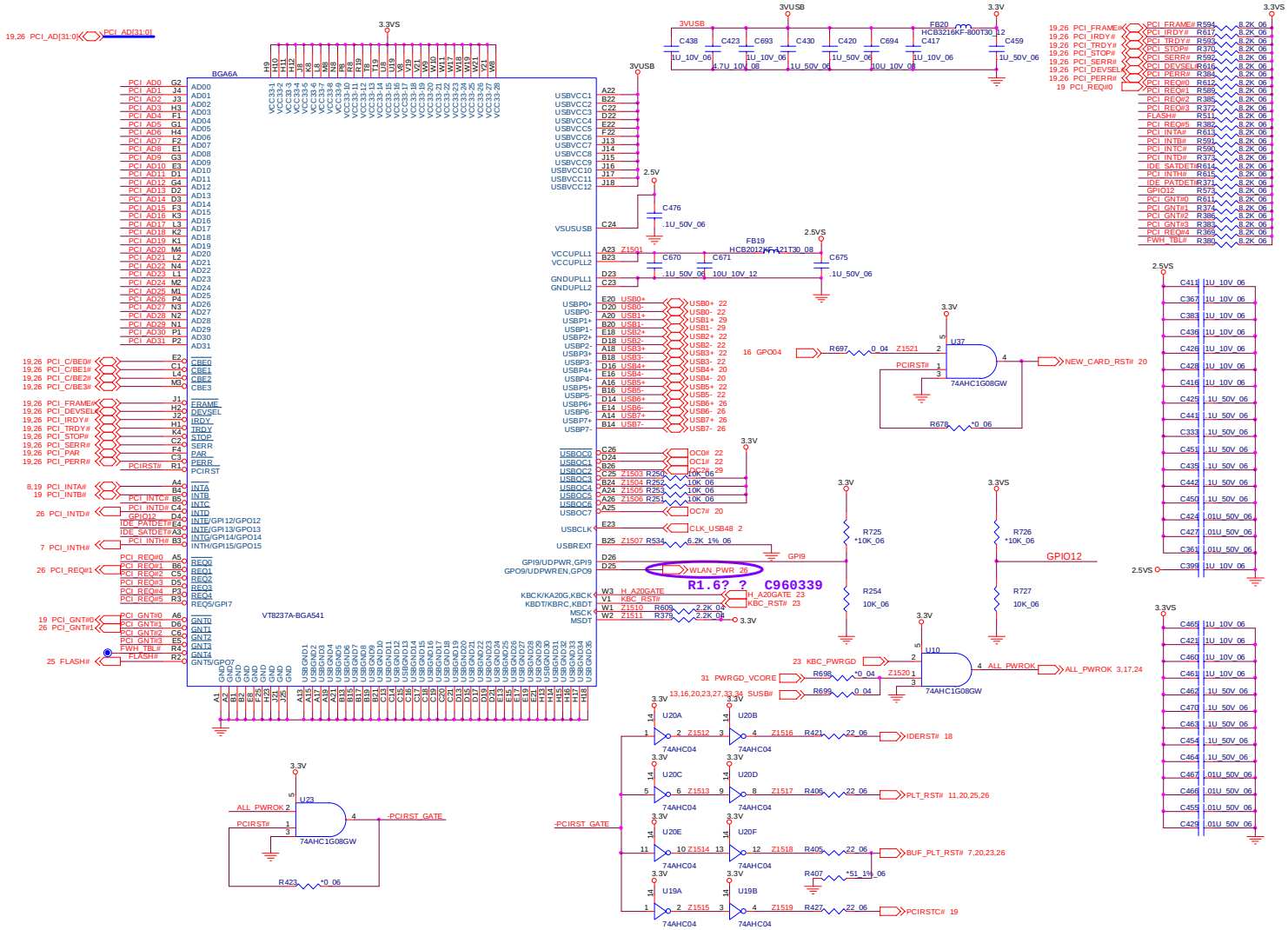
VGA G72M-4



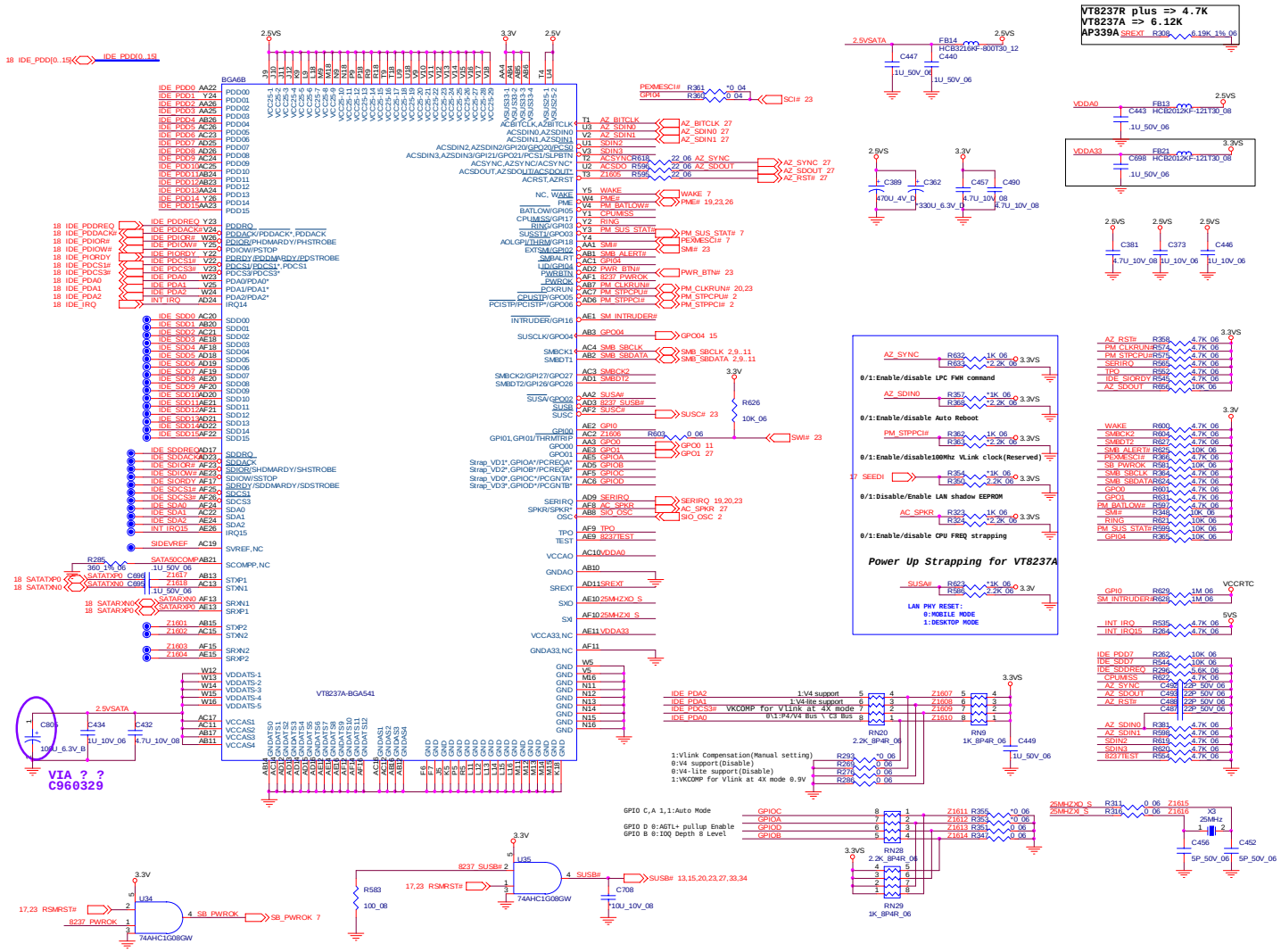
Sheet 14 of 41
VGA G72M-4

VT8237A-1

Sheet 15 of 41
VT8237A-1

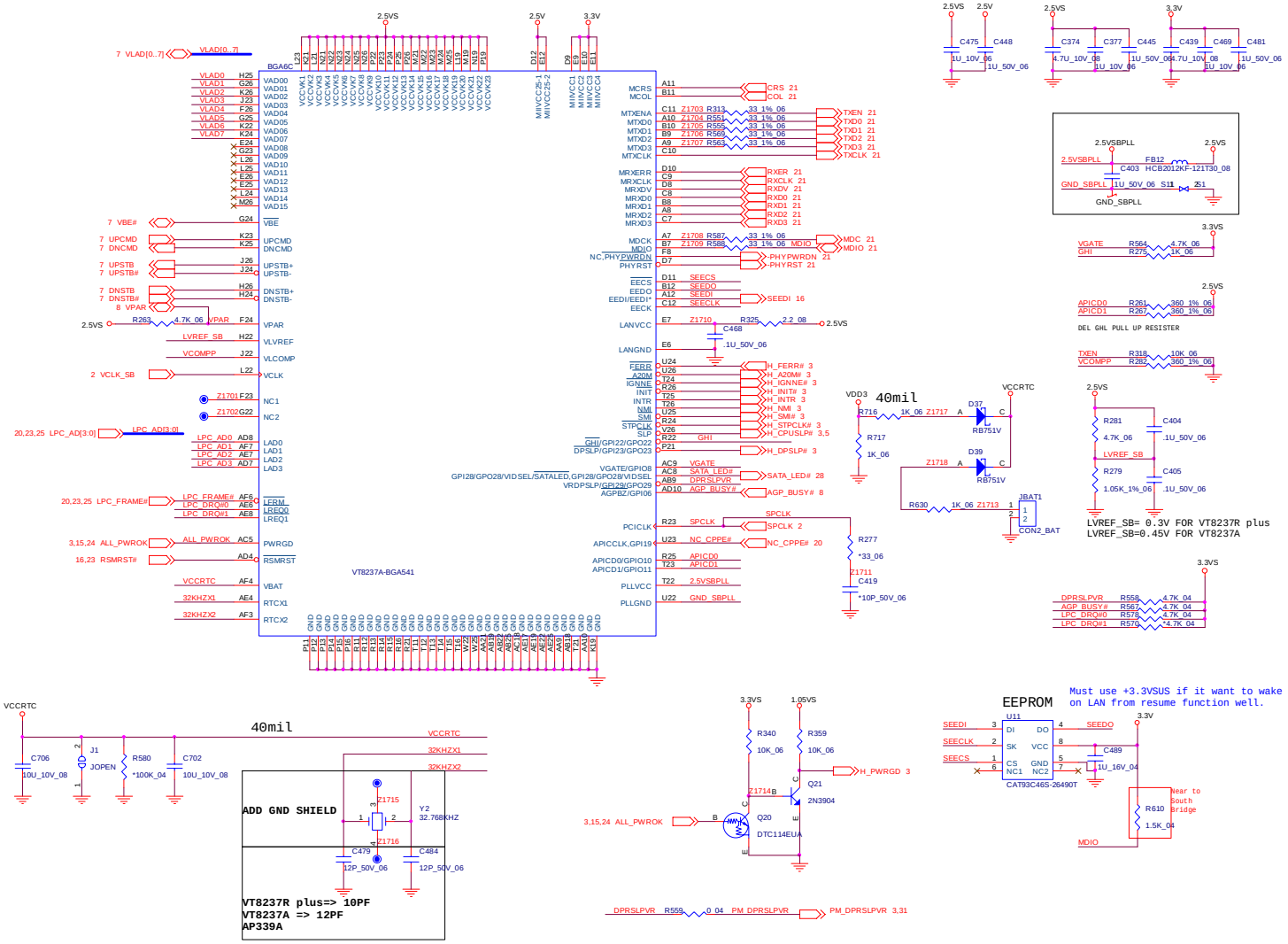


VT8237A-2


VT8237R plus => 4.7K
VT8237A => 6.12K
AP339A
VT8237A-BGA541
Power Up Strapping for VT8237A
0/1:Enable/disable LPC FWH command
0/1:Enable/disable Auto Reboot
0/1:Enable/disable100Mhz VLink clock(Reserved)
0/1:Disable/Enable LAN shadow EEPROM
0/1:Enable/disable CPU FREQ strapping
LAN PHY RESET:
0:MOBILE MODE
1:DESKTOP MODE
VIA ? ?
C960329

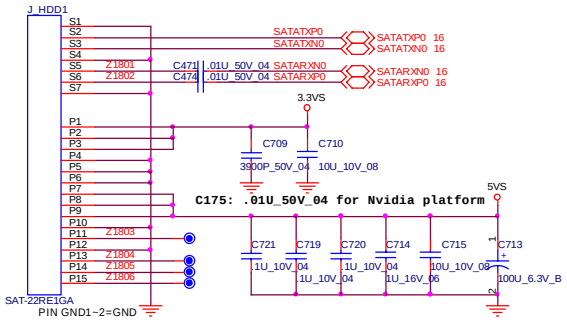
VT8237A-3

Sheet 17 of 41
VT8237A-3

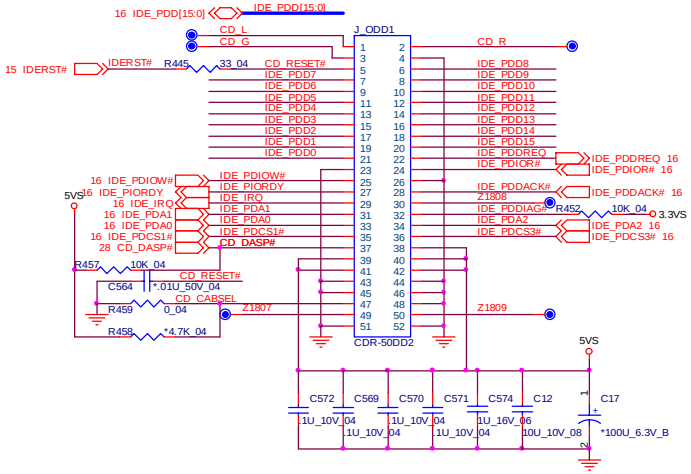


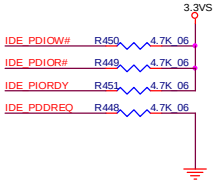
HDD & CDROM

SATA HDD



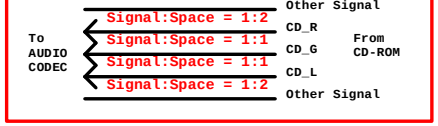
CD-ROM





Layout note:

CD_R & CD_G & CD_L must parallel routing to Audio Codec. The wide is 12mils and space must be equal.



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HDD & CDROM

CARD READER

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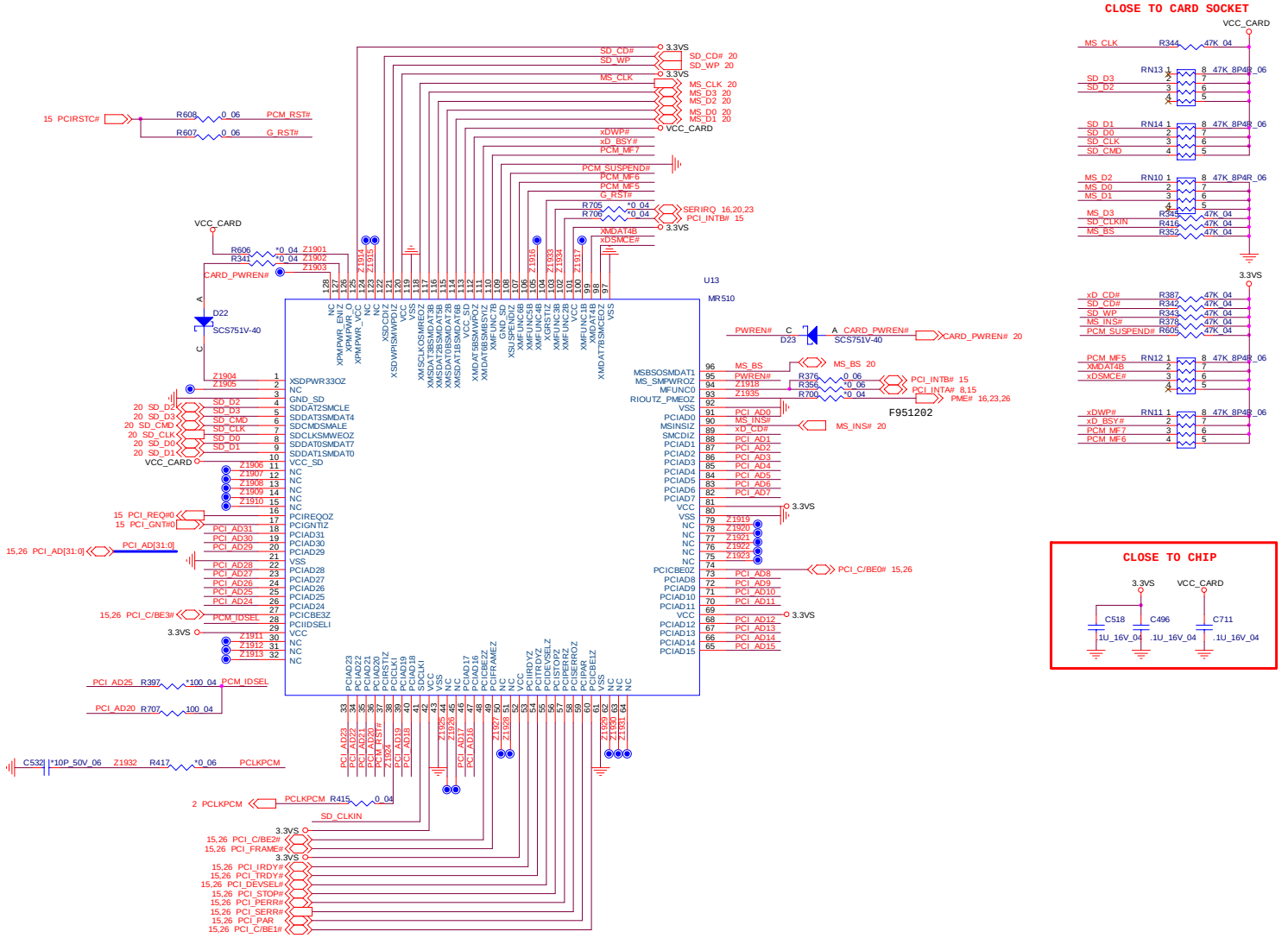
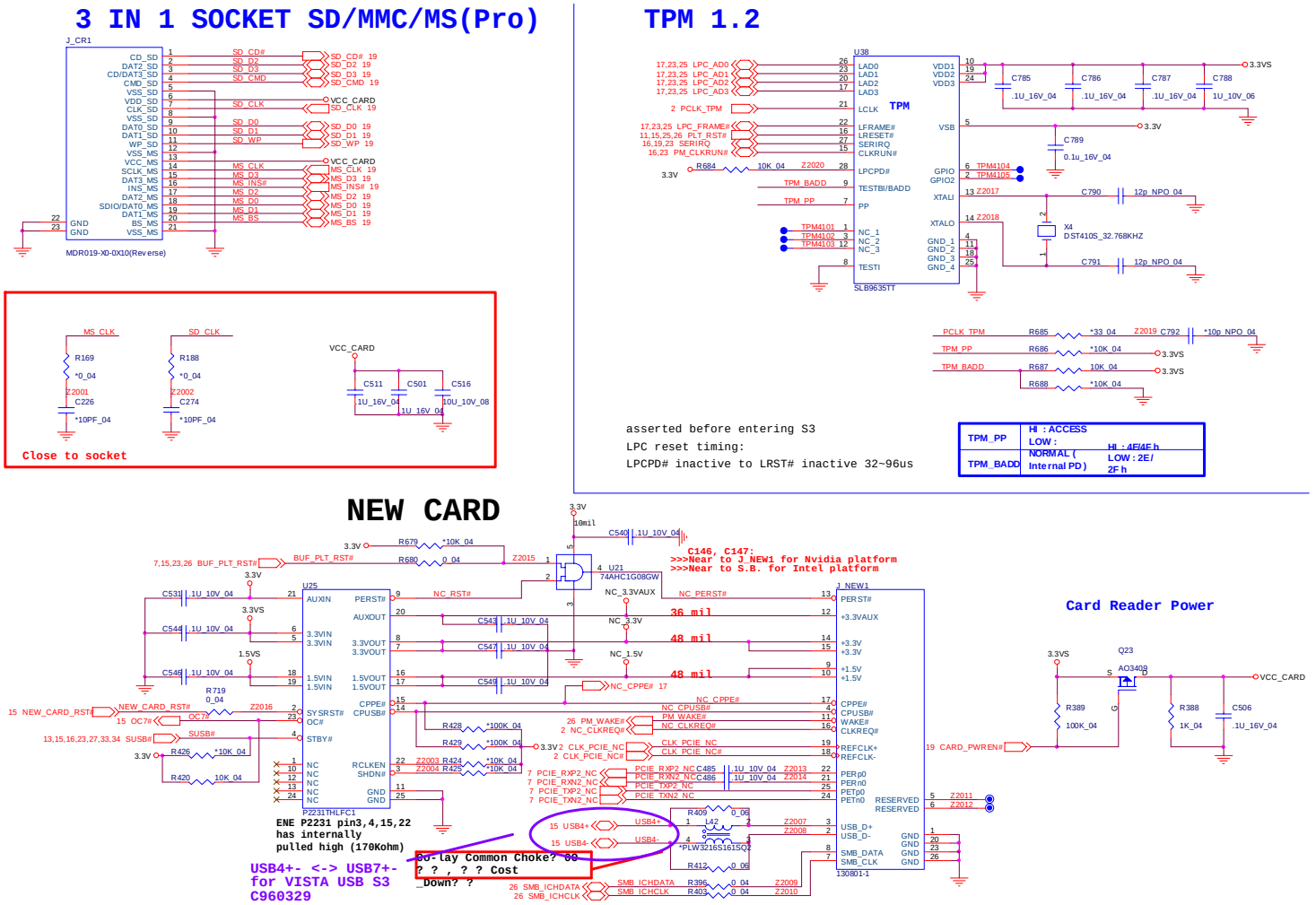
CARD READER



NEW CARD SOCKET


3 IN 1 SOCKET SD/MMC/MS(Pro)
J_CR1
MDR019-X0-0X10(Reverse)
Close to socket
TPM 1.2
U38
SLB9635TT
asserted before entering S3
LPC reset timing:
LPCPD# inactive to LRST# inactive 32~96us
TPM_PP | HI :ACCESS LOW : NORMAL (Internal PD) | HI : 4E/4F h LOW : 2E/ 2F h
TPM_BADD
NEW CARD
ENE P2231 pin3,4,15,22 has internally pulled high (170Kohm)
USB4+- <-> USB7+- for VISTA USB S3 C960329
Card Reader Power
C146, C147:
>>>Near to J_NEW1 for Nvidia platform
>>>Near to S.B. for Intel platform

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NEW CARD SOCKET

LAN

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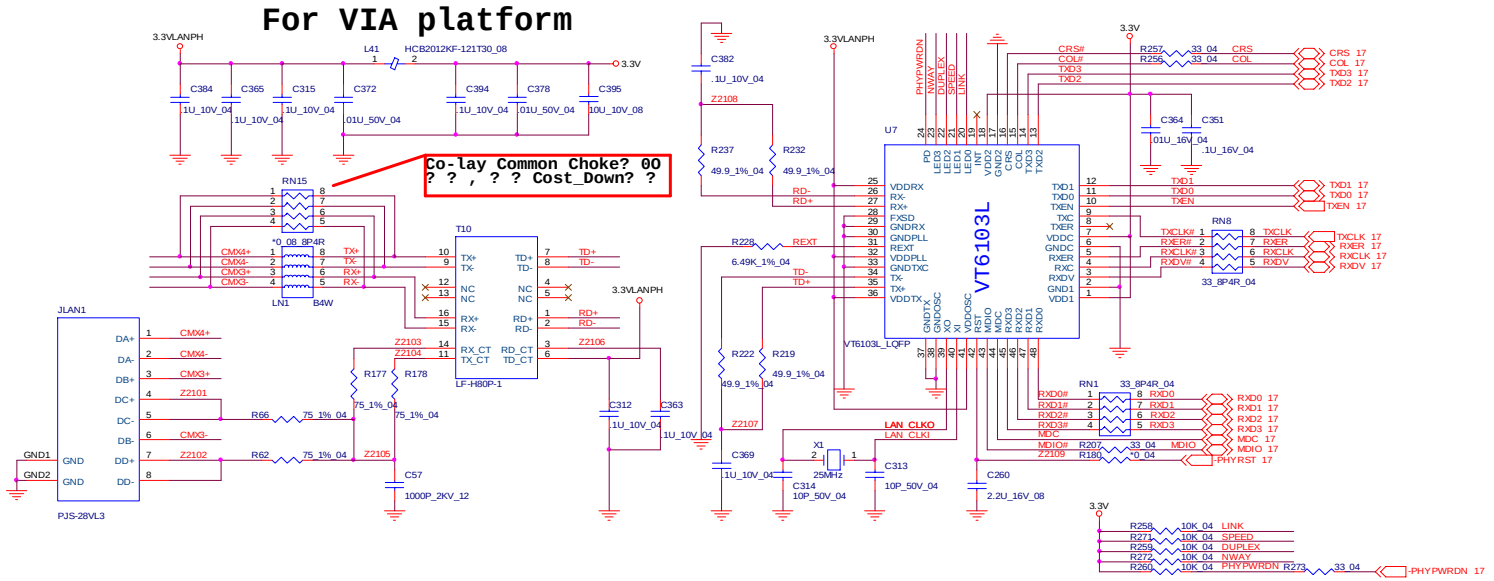
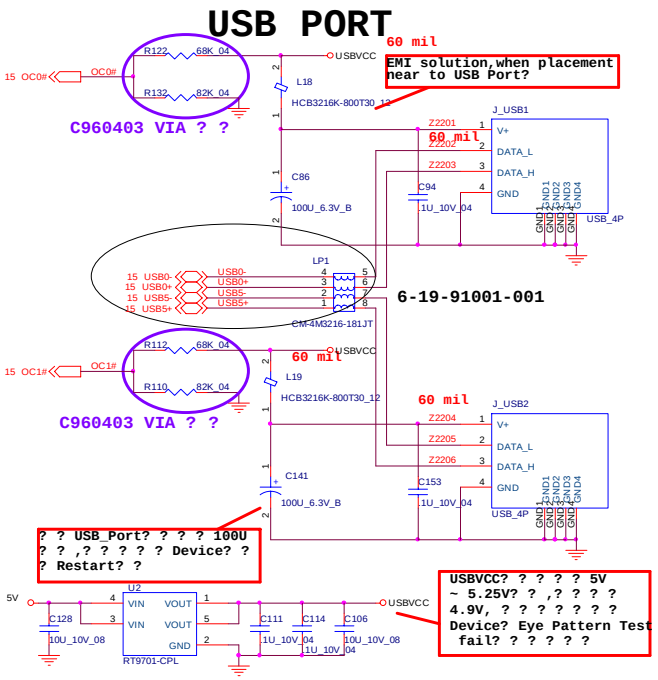
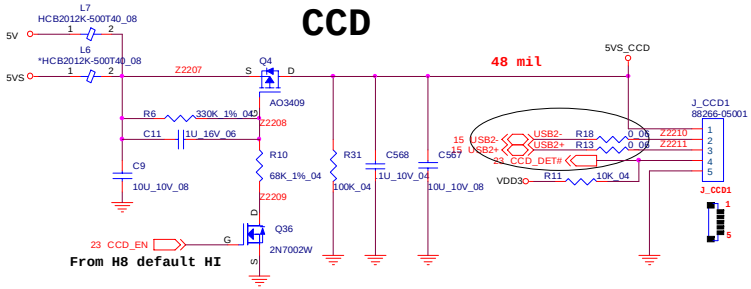
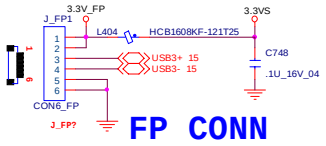
LAN



USB & CCD


USB PORT
60 mil
EMI solution,when placement near to USB Port?
C960403 VIA ? ?
J_USB1
USB_4P
6-19-91001-001
LP1
CM-4M3216-181JT
60 mil
C960403 VIA ? ?
J_USB2
USB_4P
? ? USB_Port? ? ? ? 100U ? ? ,? ? ? ? ? Device? ? ? Restart? ?
USBVCC? ? ? ? ? 5V ~ 5.25V? ? ,? ? ? ? 4.9V, ? ? ? ? ? ? ? Device? Eye Pattern Test fail? ? ? ? ? ?
RT9701-CPL





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USB & CCD

HITACHI H8

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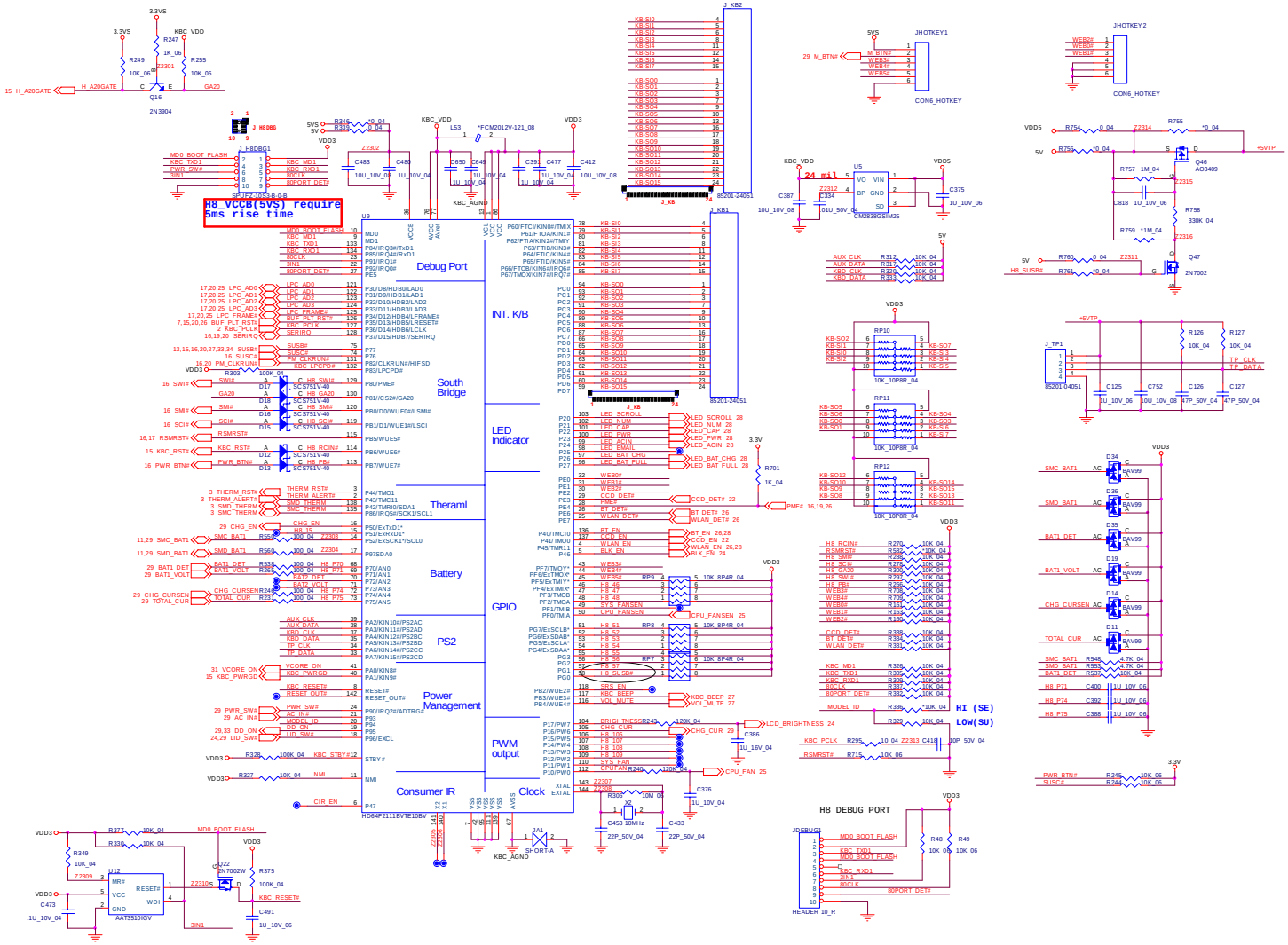
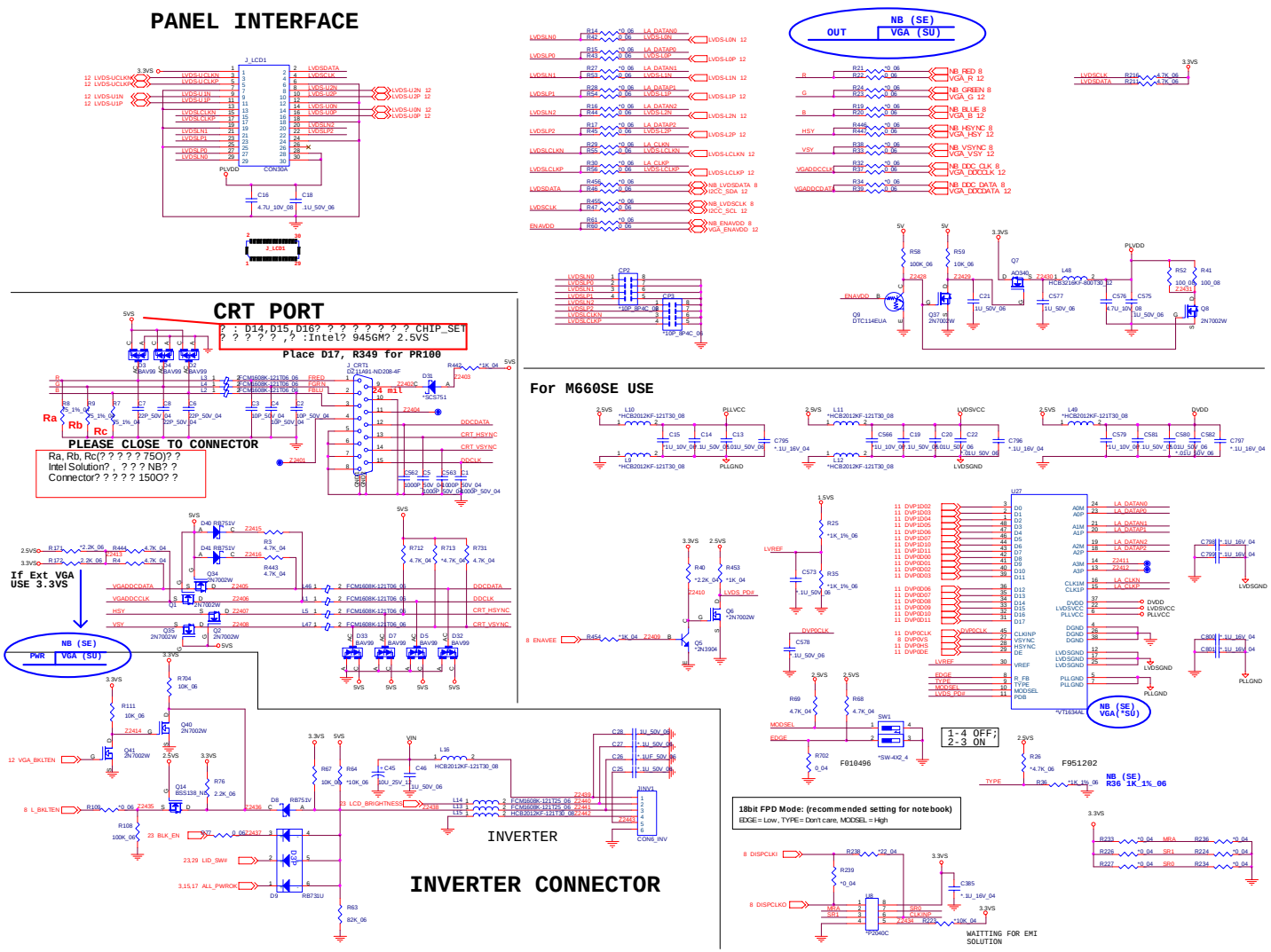
HITACHI H8



CRT & LVDS


PANEL INTERFACE
CRT PORT
Place D17, R349 for PR100
PLEASE CLOSE TO CONNECTOR
Ra, Rb, Rc(? ? ? ? ? 75Ω)? ?
Intel Solution? , ? ? ? NB? ?
Connector? ? ? ? ? 150Ω? ?
If Ext_VGA USE 3.3VS
NB (SE) PWR VGA (SU)
NB (SE) OUT VGA (SU)
For M660SE USE
INVERTER
INVERTER CONNECTOR
18bit FPD Mode: (recommended setting for notebook)
EDGE = Low , TYPE= Don't care, MODSEL = High
1-4 OFF; 2-3 ON
WAITTING FOR EMI SOLUTION

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CRT & LVDS

B.Schematic Diagrams

CPU FAN, LPC ROM

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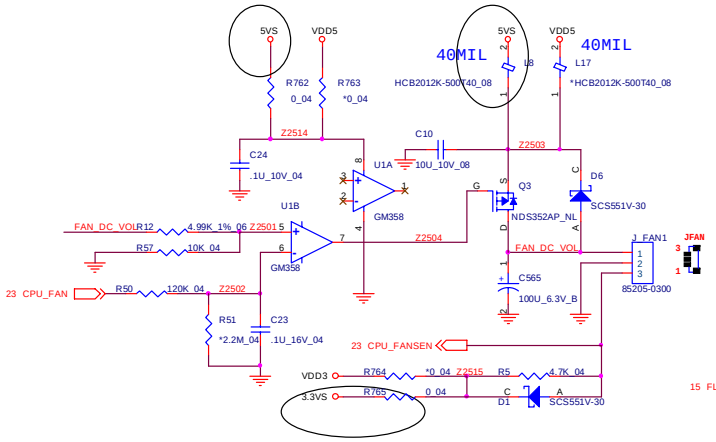
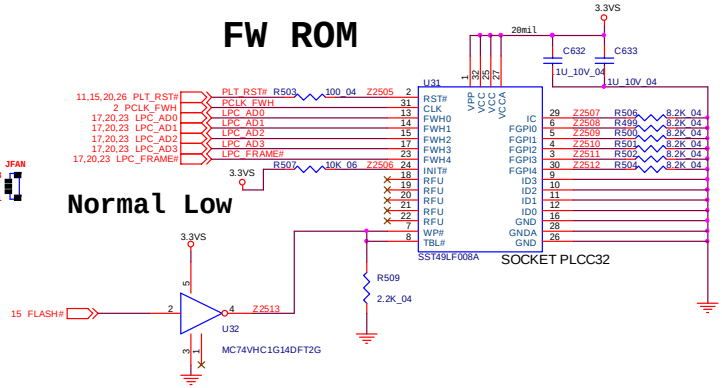
CPU FAN,
LPC ROM

FAN CONTROL



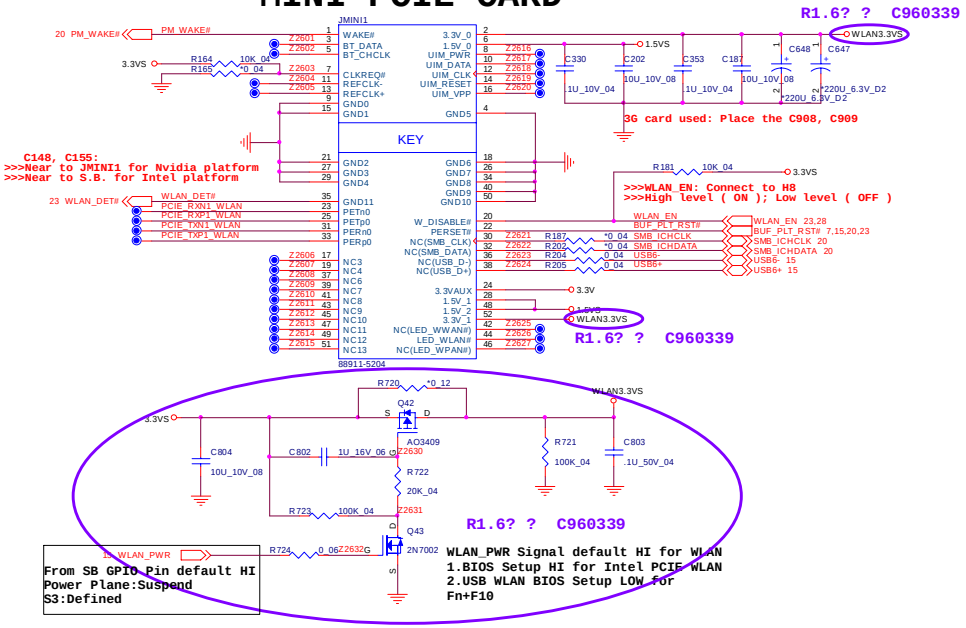
FW ROM



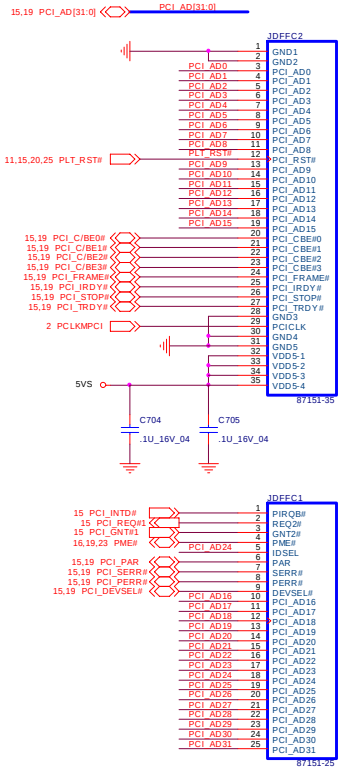
FWH_TBL#	FWH_WP#	Flash Mode
Low	Low	Protected
Low	High	Block 1~7
High	Low	Block 0
High	High	Block 0~7

MINI-PCI & BLUETOOTH

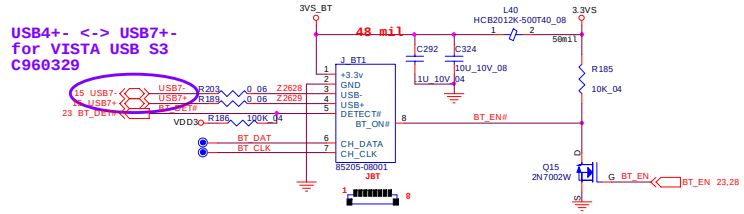
MINI-PCIE CARD


R1.6? ? C960339
3G card used: Place the C908, C909
C148, C155:
>>>Near to JMINI1 for Nvidia platform
>>>Near to S.B. for Intel platform
>>>WLAN_EN: Connect to H8
>>>High level (ON); Low level (OFF)
R1.6? ? C960339
R1.6? ? C960339
From SB GPIO Pin default HI
Power Plane:Suspend
S3:Defined
WLAN_PWR Signal default HI for WLAN
1.BIOS Setup HI for Intel PCIE WLAN
2.USB WLAN BIOS Setup LOW for
Fn+F10

MINI FFC CONN



Bluetooth



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MINI-PCI &
BLUETOOTH

AUDIO VT1708A/ALC883

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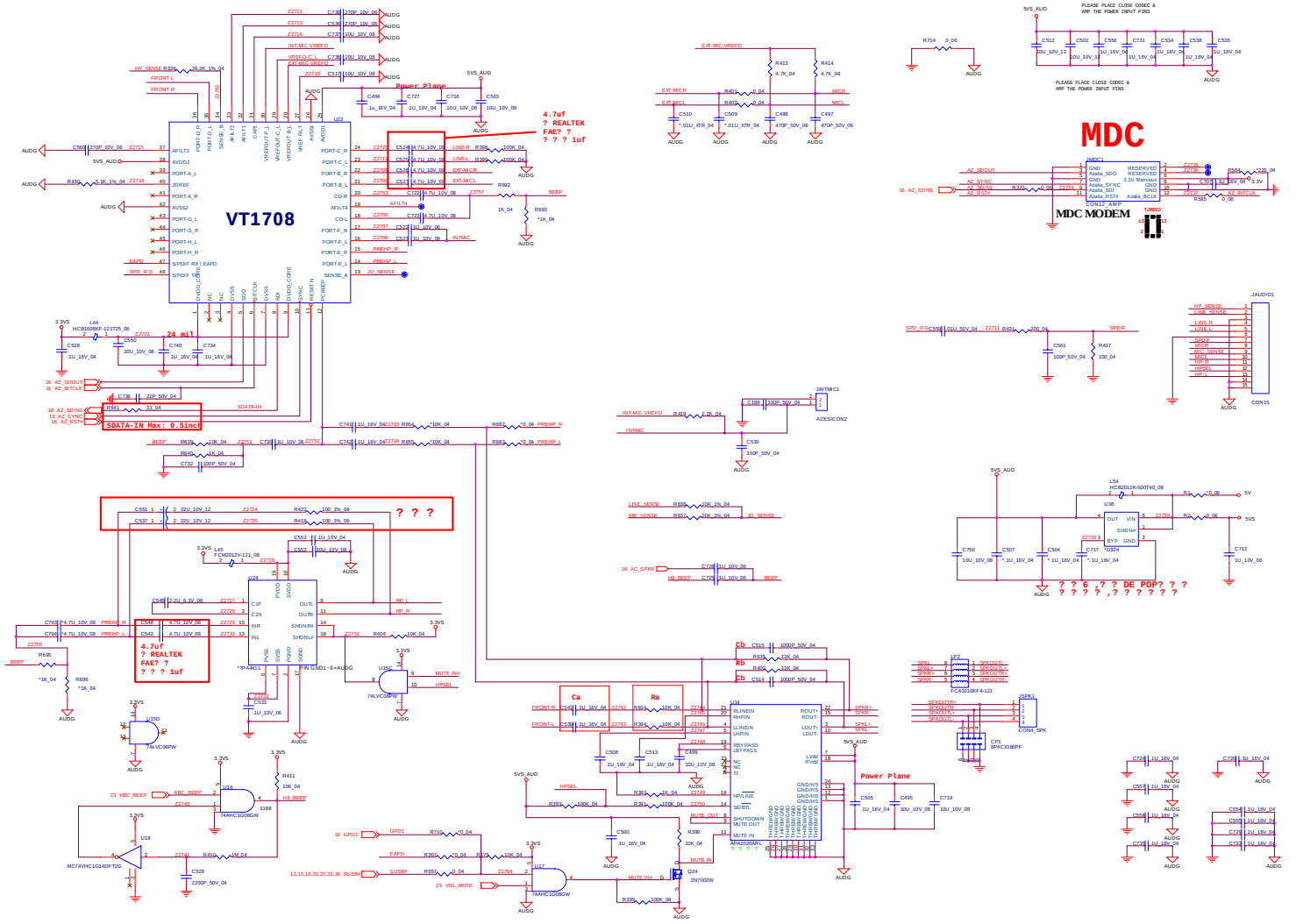
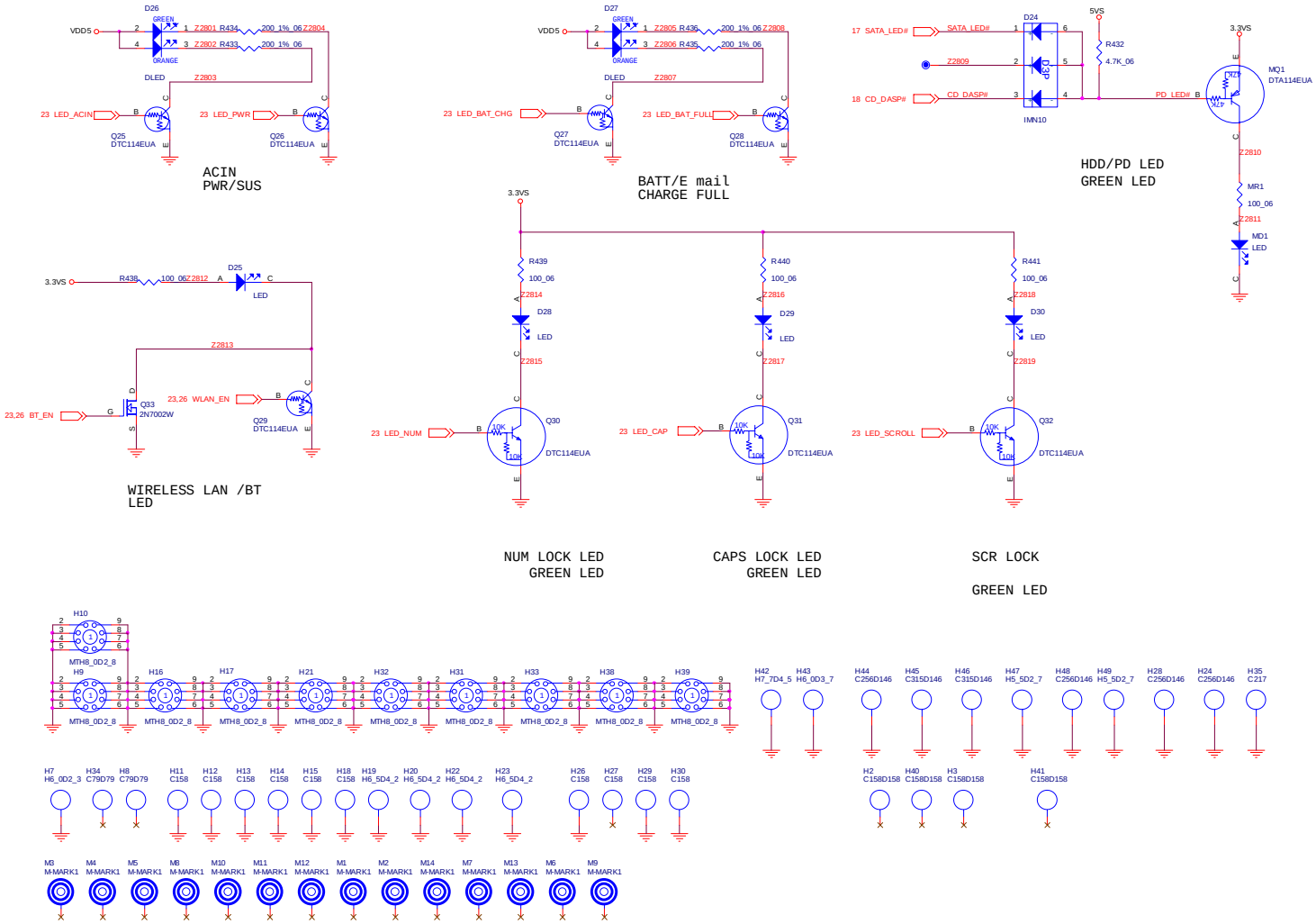
AUDIO VT1708A/
ALC883



LED



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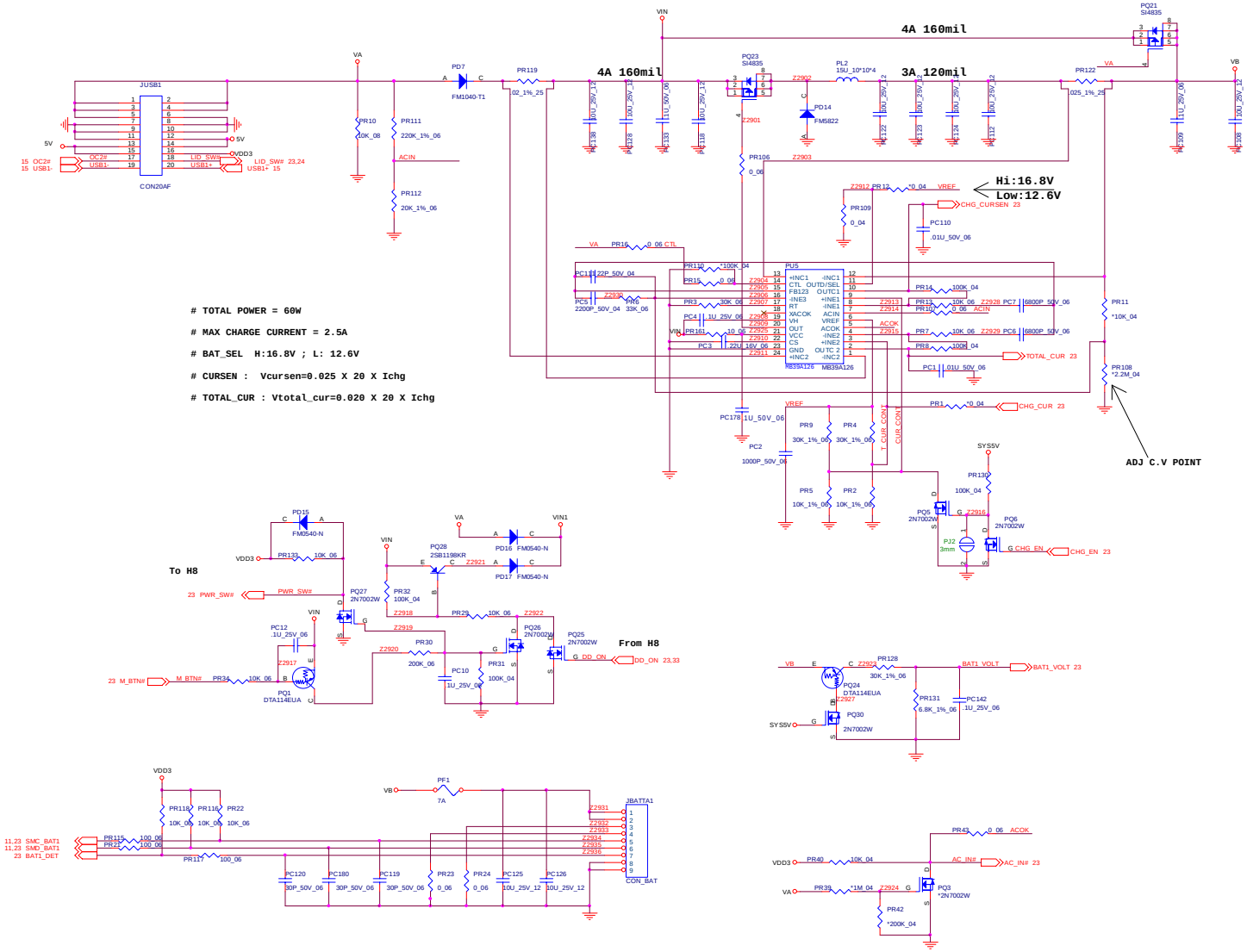
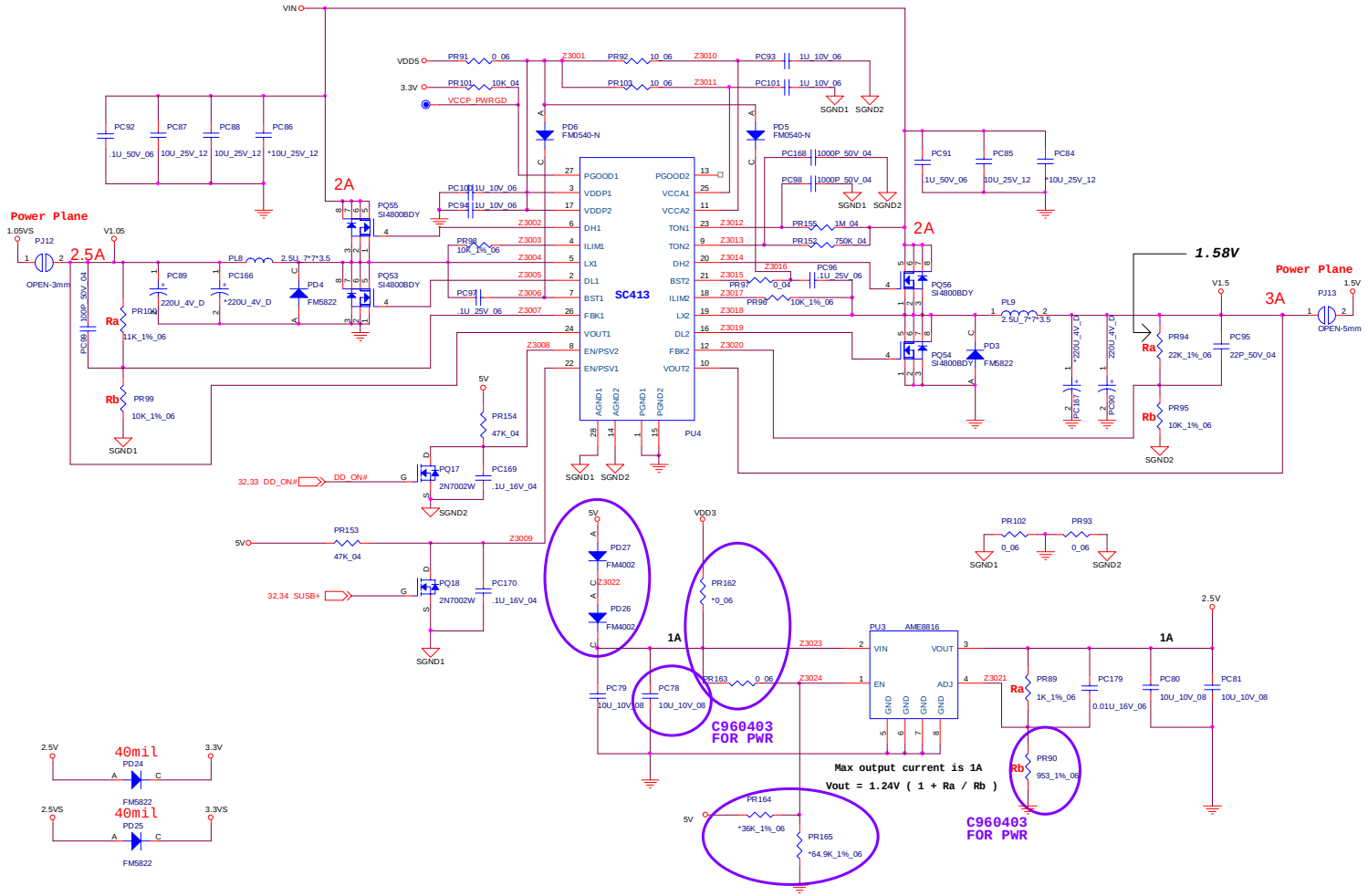
LED

CHARGER, DC IN

Sheet 29 of 41
CHARGER, DC IN



1.05VS, 1.5V, 2.5VS



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1.05VS, 1.5V, 2.5VX

VCORE

VCORE FOR YUNA AND NAPA CPU

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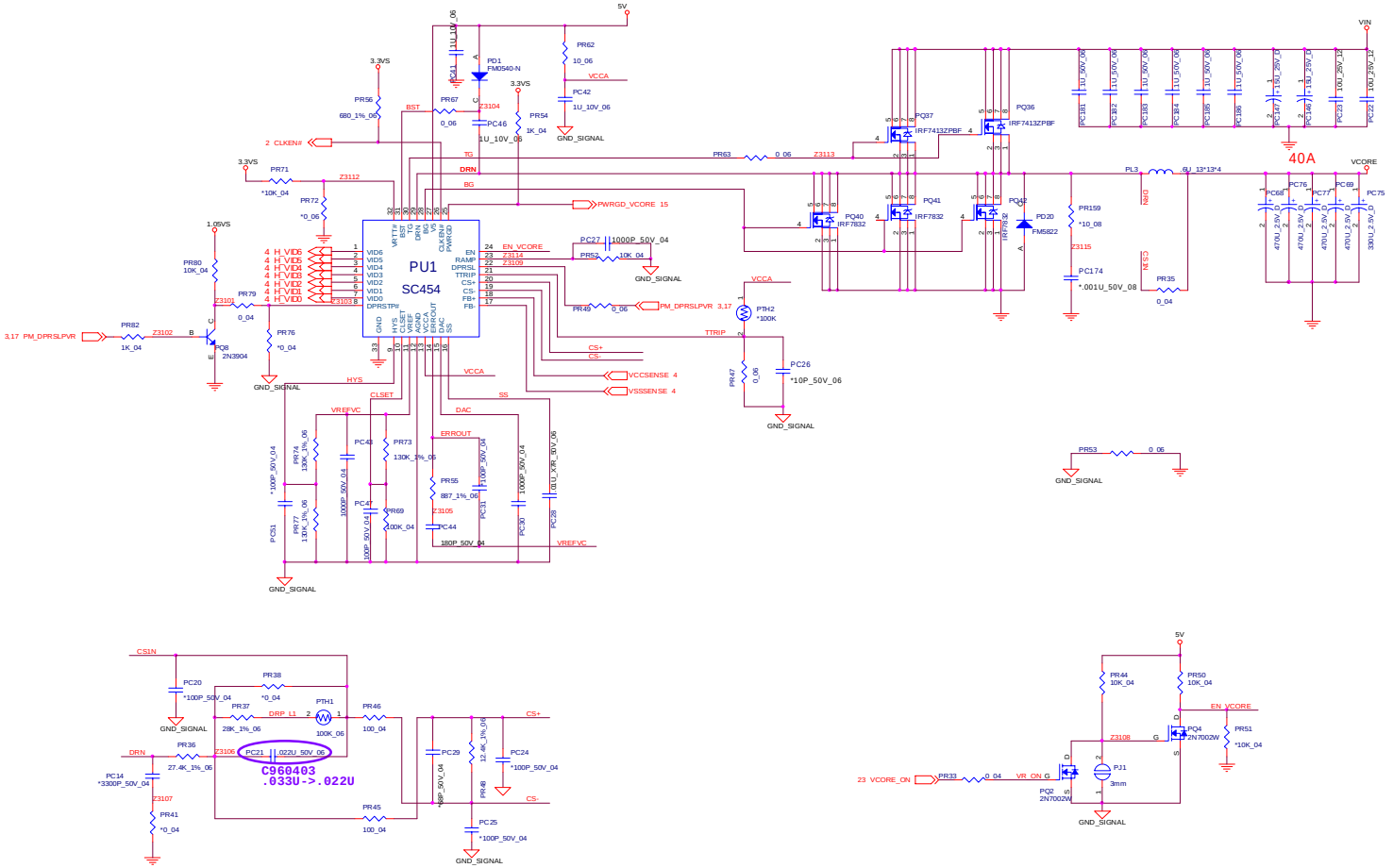
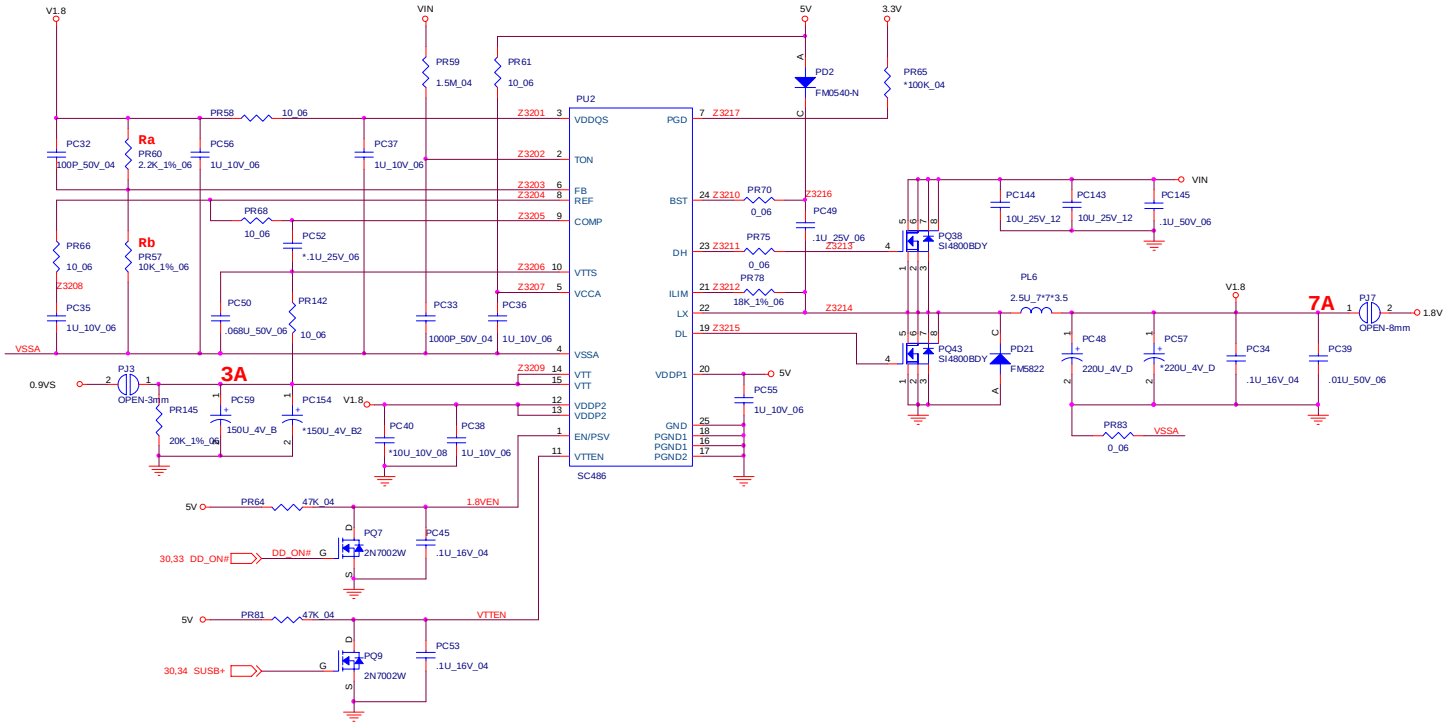
VCORE



1.8V, 0.9VS



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1.8V, 0.9VS

VDD3, VDD5

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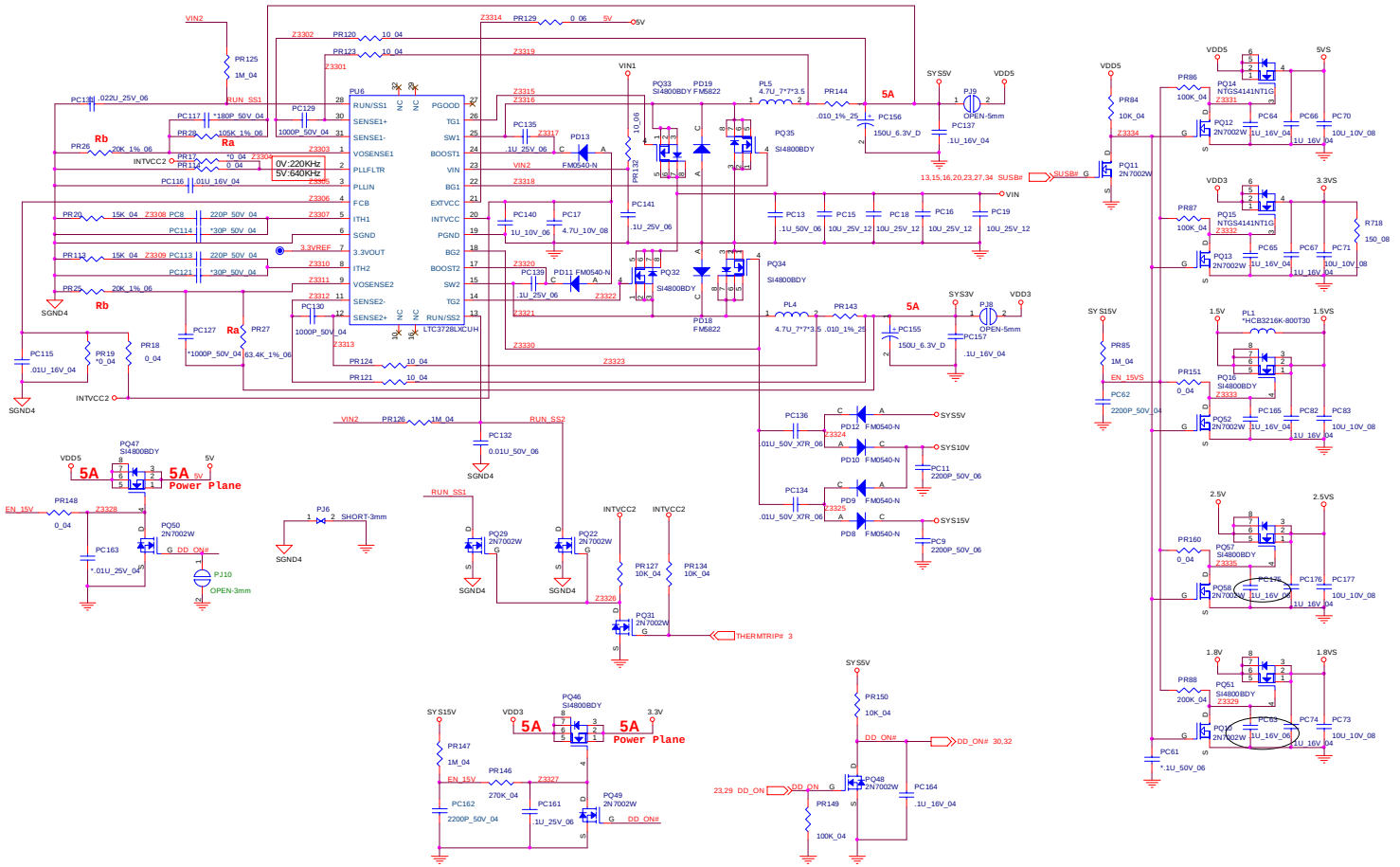
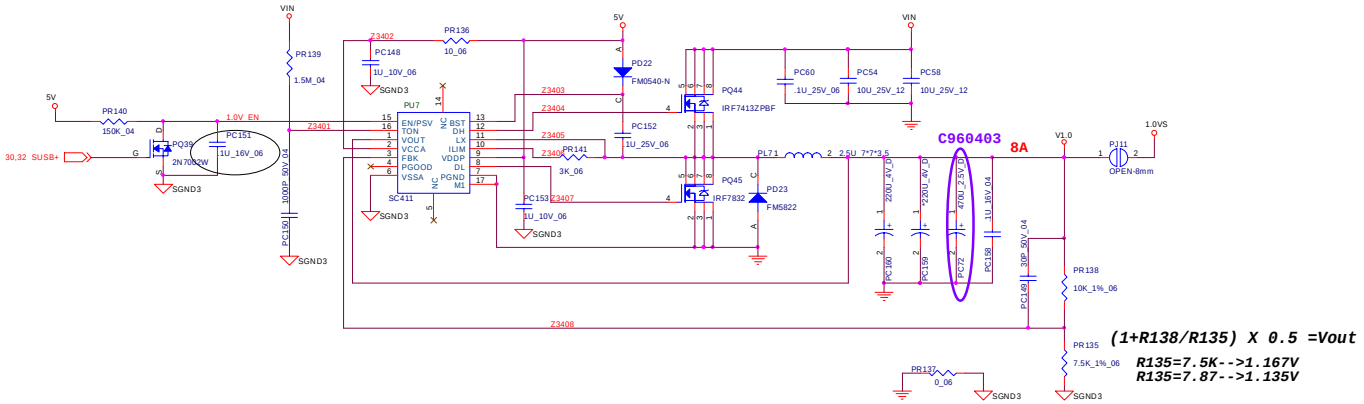
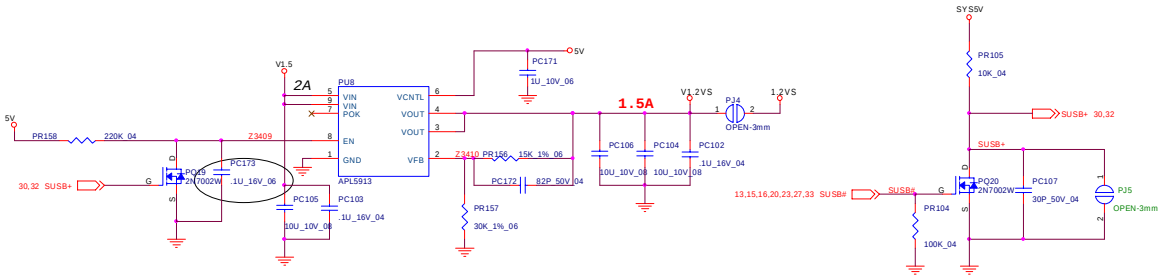
VDD3, VDD5



EXT GPU 1.0VS/1.2VS





Sheet 34 of 41
EXT GPU 1.0VS/
1.2VS

PWR HOT BOARD

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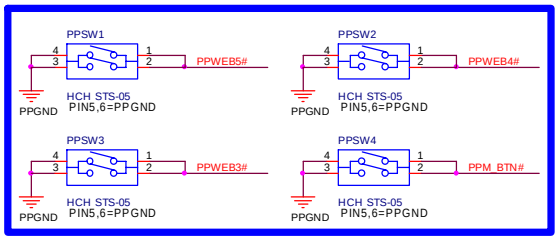
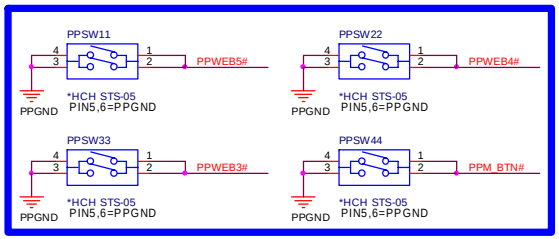
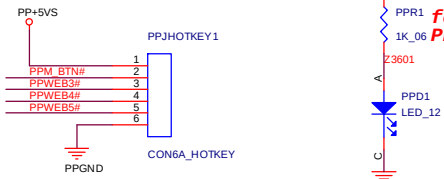
PWR HOT BOARD

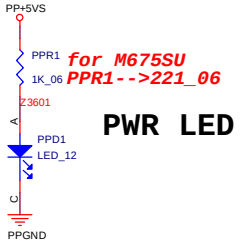
FOR M670SU



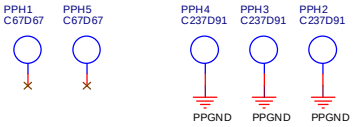
FOR M675SU



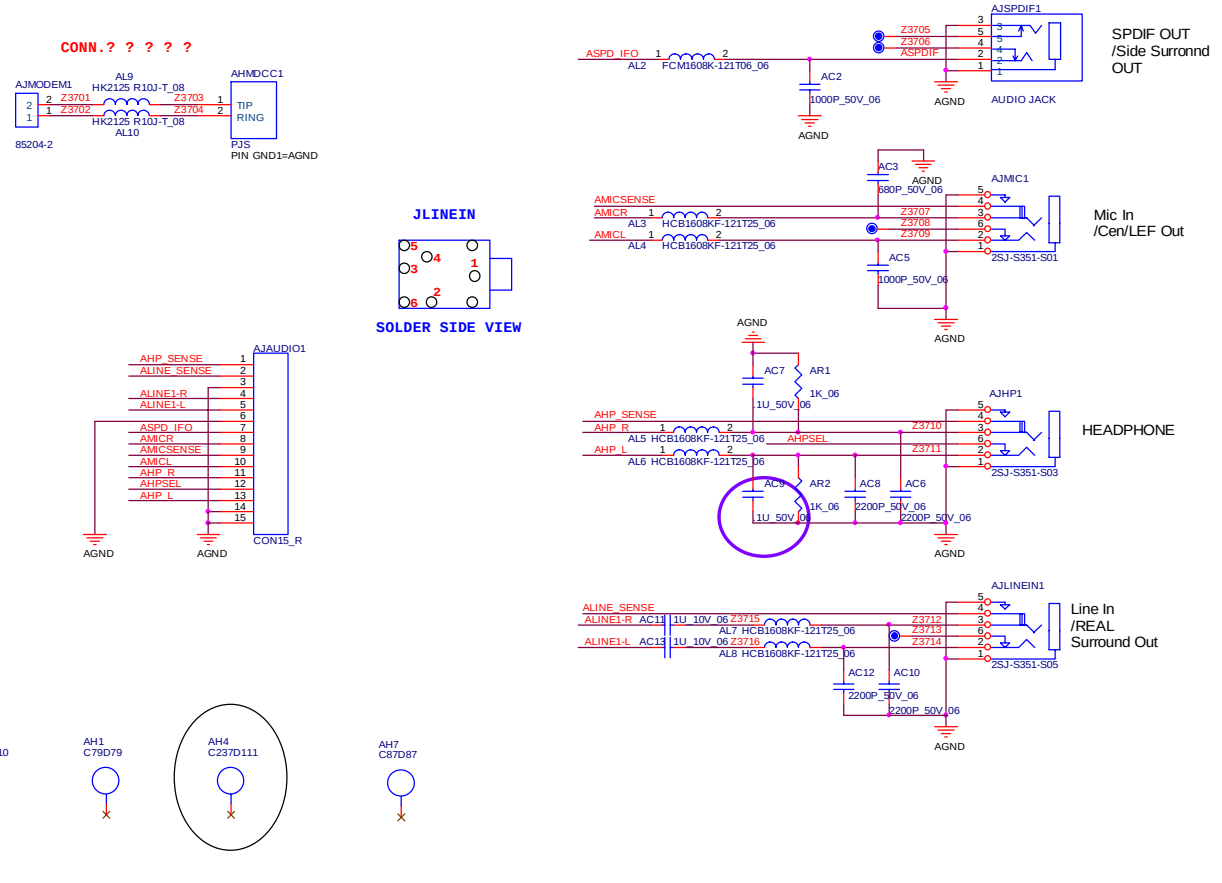




PWR LED



AUDIO & MODEM BOARD



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AUDIO & MODEM BOARD

CLICK BOARD

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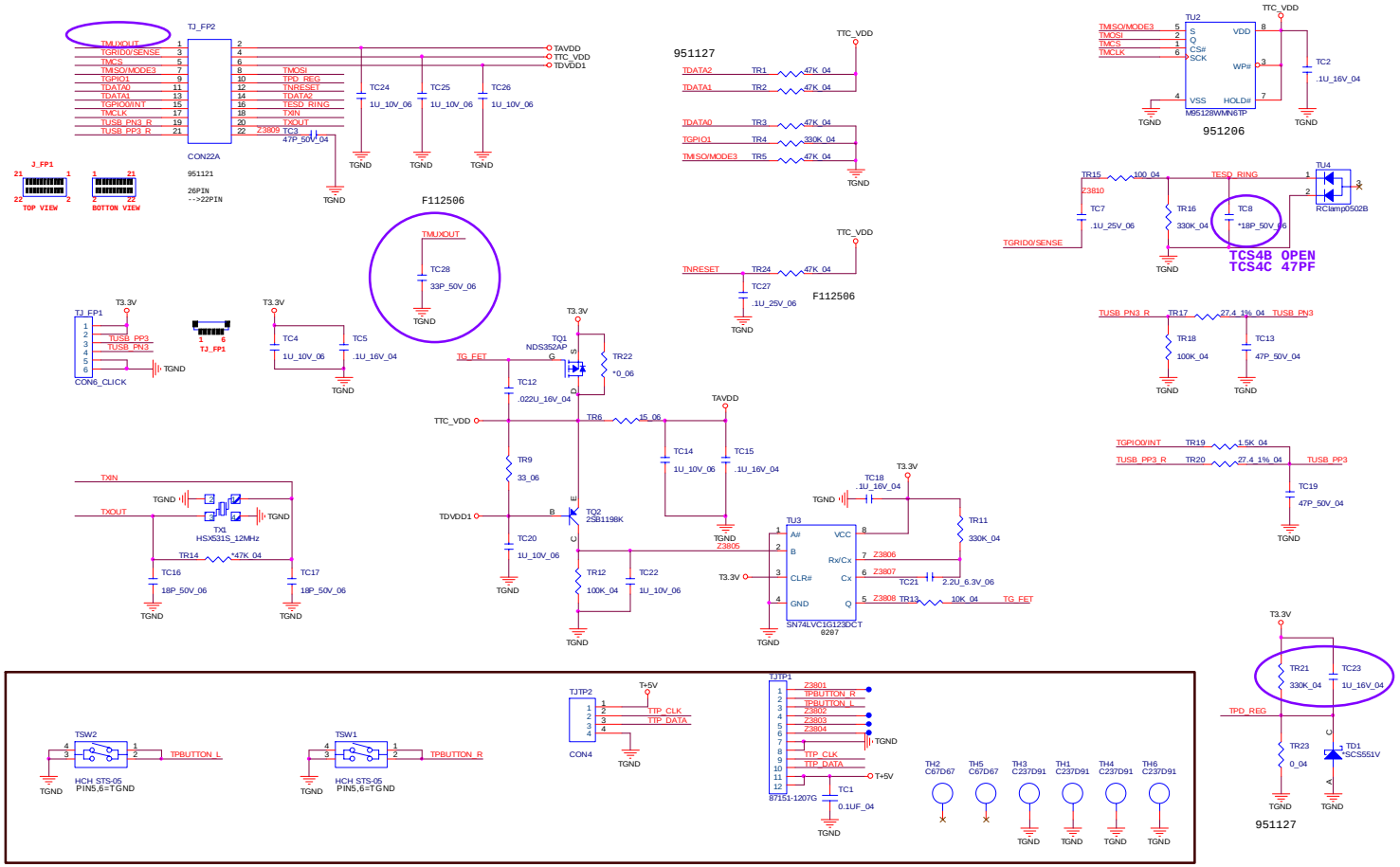
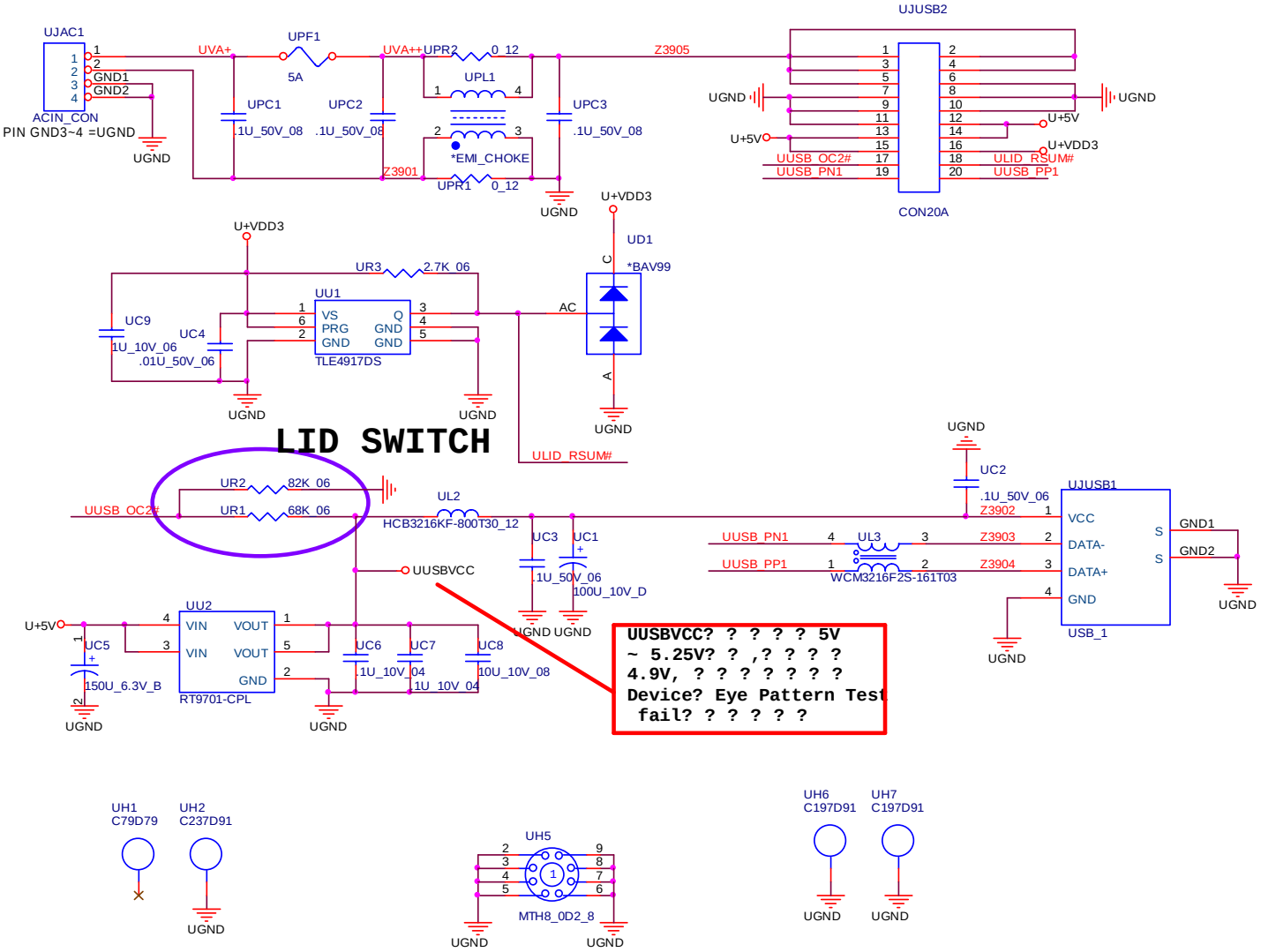
CLICK BOARD



USB BOARD



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USB BOARD

FINGERPRINT BOARD

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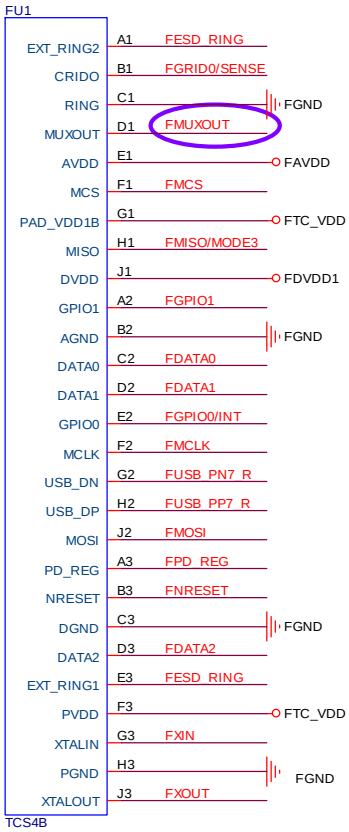
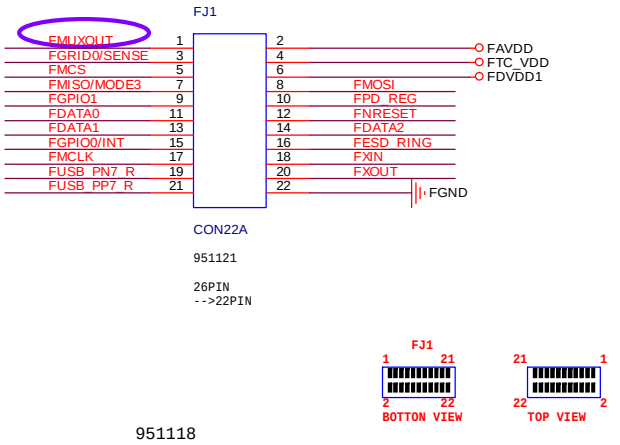
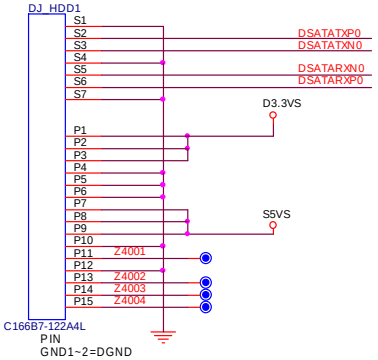
FINGERPRINT BOARD





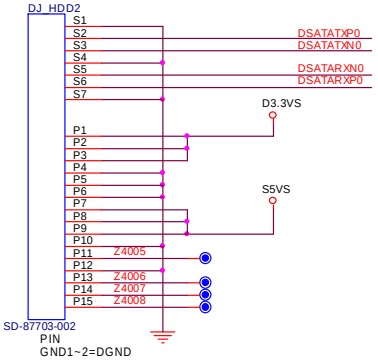
HDD CONVERTER BOARD

TO SATA HDD



4mil/6mil/4mil

FROM M/B



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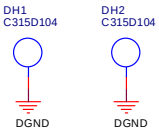
HDD CONVERTER BOARD

Layout note:

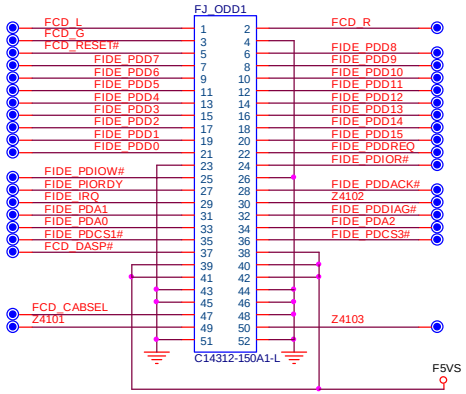
4mil/6mil/4mil

DSATATXP0;DSATATXN0,DSATARXN0,DSATARXP0

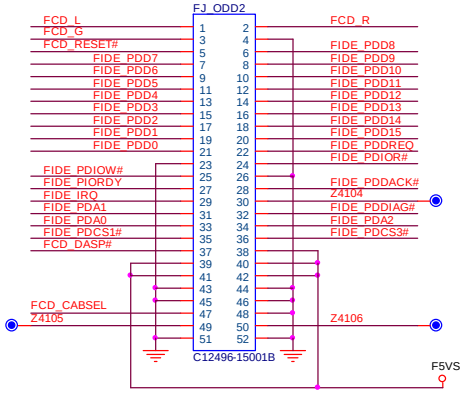


ODD CONVERTER BOARD

TO CD-ROM



FROM M/B



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ODD CONVERTER BOARD

Layout note:

CD_R & CD_G & CD_L must parallel routing to Audio Codec. The wide is 12mils and space must be equal.